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RESINA PODOPHYLLI.

By G. H. Chas. Klie.

Resin of podophyllum is prepared, according to the U. S. Pharmacopœia, by exhausting 16 troyounces of pulverized podophyllum root with alcohol until 24 fluidounces have been obtained. After concentration of this to 6 fluidounces it is, with constant stirring, poured into a mixture of 7 pints of water and 2 drachms of muriatic acid. The sediment, after washing twice by decantation, is gathered on a strainer, expressed, and dried by a moderate warmth. The eclectic dispensatory has this preparation made by adding one pint of strong tincture of mandrake root to one gallon of water acidulated with 18 fluidrachms of hydrochloric acid, washing the precipitate on a filter, and drying in a warm place of 80° to 85° F. It goes on to say: "This resin has also been obtained by precipitation without heat by adding a solution of alum to a saturated tincture of the root, but by this process all the resin is not obtained." The only practical difference between the U. S. Pharmacopœia formula and that of the eclectic dispensatory is that the former directs a certain quantity of the root to be exhausted, whereas the latter gives free scope to the operator to consider a tincture strong whether made with 8, 12 or 16 ounces of the root.

Having prepared the resin several times according to the Pharmacopœia's directions, and having found the product very small each time, I was induced to try different strengths of alcohol, from dilute upwards, and also different mixtures for precipitation, to ascertain what alcohol and precipitating mixture would give the largest yield. The result is given in the table below. In all operations percolation was carried on until 1½ pints of tincture had been obtained; the tincture remaining in the mass was displaced by water. This generally increased the percolate to two pints. This was invariably concentrated to 8 fluidounces,

regaining the alcohol by distillation. When dilute alcohol had been used for exhaustion, in the subsequent process of concentration the resin would separate and settle on the bottom of the still. It had to be redissolved in alcohol before precipitation. None of the products would be entirely redissolved in alcohol of the same strength as that with which it had been extracted, nor in any other.

16 troyounces of Podophyllum root exhausted with Alcohol.	Precipitated in	Weight of product.	Color of product.
Sp. Gr.		Grs.	
·825	6 drachms muriatic acid to 4 pints water...	236	Like licorice root powder.
·825	½ oz. alumn to 4 pints water.....	223½	Greenish-yellow.
·825	120 minims muriatic acid to 4 pts. water..	222	A trifle lighter than powdered ipecac root.
·825	4 pints water.....	223	Like powdered ipecac root.
·930	½ oz. alum to 4 pints water.....	557	Greenish-yellow.
·938	6 drachms muriatic acid to 4 pints water..	340	Like powdered licorice root.
·938	120 minims muriatic acid to 4 pts. water...	352¾	Brownish-yellow, with a tinge of green.
·938	4 pints water.....	352	Somewhat darker than powdered scammony.
·945	½ oz. alum to 4 pints water.....	243½	Like powdered extract of licorice.
·945	80 minims muriatic acid to 4 pints water..	244	A trifle lighter than common emery flour.
·945	4 pints water.....	246	Same as foregoing.

This table shows such a large yield for the alcohol of ·930 sp. gr. that it was concluded, making proper allowance for difference in the root and thoroughness of exhaustion, that, by using it for the preparation of the resin, the most satisfactory results would be obtained.

Lowell, N. St. Louis, Mo., Oct., 1877.

AROMATIC SYRUP OF LIQUORICE.

Editor American Journal of Pharmacy:

The following is a recipe for an aromatic syrup of liquorice which possesses such excellent qualities of disguising the taste of sulph. quinia that I think it my duty to communicate the formula to my pharmaceutical brethren:

Take of Pulverized Extract of Liquorice,	.	4 ounces
Jamaica Ginger, . . .		
Cinnamon Bark, . .	each	2 ounces
Cloves, ...		1 ounce
Sugar, ...		60 troyounces
Water, ...		a sufficient quantity

Reduce the ginger, cinnamon and cloves to a coarse powder and boil in two pints of water over a slow fire for one hour. Then strain and

dissolve in the liquid the pulv. extract of liquorice, with the aid of a gentle heat, stirring to assist the solution. When dissolved add the sugar, keeping up the heat till the latter is also dissolved. Then strain while hot and add hot water through the filter to make four pints of finished syrup.

The above syrup I find to disguise the taste of quinia better than syrup of liquorice root, the aromatic elixir of liquorice or the simple syrup of the extract of liquorice. It will completely cover the taste of 20 grains of quinia sulphate in one ounce of the syrup, and only a slightly bitter taste will be developed ten or fifteen minutes after taking, which, however, may be removed by taking a draught of black coffee with sugar.

This syrup has such a pleasant flavor, and none of the often objectionable sweetness of liquorice, that our physicians who are using it say that they find no trouble at all now in giving quinia in solution to children or to their most delicate patients. A. S.

Tell City, Ind.

REMARKS.—Ginger contains nearly one-fifth of its weight of starch, which must be dissolved by boiling with water, whereby, also, considerable of the volatile oils of the aromatics must be lost. It would seem, therefore, as if the process might be improved. The action of the proposed syrup probably depends upon the tannin of the cinnamon and cloves producing quinia tannate, which is slowly soluble in dilute acids.—EDITOR.

SYRUPUS LACTUCARII.

BY A. G. SCHLOTTERBECK.

The query, "What is a good working formula for syrupus lactucarii?" was submitted to the writer by the Cumberland County (Me.) Pharmaceutical Association at its meeting last August, and led to a number of experiments, with the following results: The point to be attained was to produce a clear, transparent preparation, and the question first to be considered, What is the turbidity owing to? Some chemists claim that lactucarium contains a caoutchouc-like principle, and this was thought might prove the cause of our tribulations.

A sample of English lactucarium was selected and macerated in chloroform for ten hours, the chloroform carefully drained off, and the process of the Pharmacopœia pursued. It was observed during the

process that as soon as the alcohol had evaporated, the liquid remaining in the evaporating dish became turbid; the process was therefore continued until only one-half the quantity directed by the Pharmacopœia remained. This, after cooling, was added to an equal quantity of alcohol, which immediately redissolved the precipitated "resin," resulting in a beautiful light-brown solution. The temperature at which the process of evaporation was conducted at no time exceeded 160°F.

At this stage of the process the solution obtained was divided in two equal parts, one of which was mixed with syrup previously heated as the Pharmacopœia directs; the other was added to cold syrup, the resulting preparations both being superior in appearance than the result generally obtained by following strictly the formula of the Pharmacopœia; especially the one in which cold syrup had been employed is nearly perfect in appearance. Both have retained their original state during the six weeks that have passed since first made. The writer does, however, not recommend the employment of chloroform as here used, as it is claimed to dissolve a portion of lactucin, and therefore would reduce the strength of the preparation.

Lactucarium contains, according to several accepted analyses, besides a number of other constituents, pectic, malic, oxalic, citric and other acids. This suggested to the writer the employment of litmus paper to ascertain what reaction the different syrups in his possession would give on the same; three samples were tested, and all gave an acid reaction. It was decided to neutralize this acid condition, and accordingly the most unsightly of all the syrups was selected. This had been prepared several months and was made strictly in accordance with the Pharmacopœia. One drachm of this syrup was diluted with an equal bulk of water, and liquor potassæ was added, ten drops of which sufficed to change the appearance of the syrup from a muddy into a beautiful clear dark-brown preparation, neutral to either blue or red test paper.

Afterwards some of the same syrup was neutralized without being diluted, with the same result. The addition of this alkaline solution changes the taste from an acrid bitter to a sweetish and very slightly alkaline. Whether the alkali is objectionable in the preparation therapeutically is an open question.

The writer is therefore of the opinion that the cloudiness of syrupus

lactucarii when present is owing to an excess of one or more of the acids contained in that substance, and is the more convinced of this as at times he has obtained a perfectly clear syrup by simply adhering to the formula of the Pharmacopœia, while at other times, using equal care, a muddy preparation would be the result, showing a difference in the substance employed.

Portland, Me., Oct. 22, 1877.

REMARKS BY THE EDITOR.—The bitter principles of lactucarium are *lactucin*, *lactucic acid* and *lactucopicrin*, the first of which appears to be present in larger quantity and to be less freely soluble in water than the others. Aubergier already observed that the bitter taste of lactucin is destroyed by alkalies and not restored by acids; the syrup suggested in the above paper should therefore be carefully tested for its medicinal properties before it is substituted for the officinal syrup. Since Walz found lactucin to be freely soluble in acetic acid it is not improbable that lactucarium may be exhausted by dilute acetic acid, and the liquid preserved by sugar, without the alteration of any of its constituents.

ACTION of NITRIC ACID on SYRUP of IODIDE of IRON.

BY HERMAN BETZ.

Read at the Alumni Meeting, November 1.

At the last Alumni Meeting, Mr. Kennedy spoke of a paper which had been read before the American Pharmaceutical Association, wherein it was stated that some syrup of iodide of iron was suspected to be deficient in strength and colored with anilin-green, on account of its deep green color, and that the suspicion was proven to be correct by the liquid becoming colorless on the addition of a few drops of dilute nitric acid.

In examining into this subject, syrup of ferrous iodide, U. S. P., was first treated with nitric acid, which gave a dense black mixture from which free iodine was obtained by filtering and subliming the precipitate. To a small quantity of the same syrup a deep green color was imparted by a minute quantity of anilin-green; on adding afterwards a few drops of nitric acid the reaction did not differ from the foregoing one.

If dilute nitric acid, U. S. P., is added in a small quantity to syrup of iodide of iron, the same reaction takes place, but is not visible quite

as well until starch paste is added, when the color is at once changed to deep blue. This is also the case if the syrup is tinged with anilin-green and then treated with the dilute acid.

The same syrup, previously diluted with simple syrup, was treated in precisely the same manner, and the same reactions took place.

Anilin-green mixes well with syrup; if a small quantity of simple syrup is thus treated, the color will be destroyed by nitric acid, but not by dilute nitric acid, U. S. P.

Nitric acid does not change the color of simple syrup.

The color of anilin-green is destroyed by strong nitric acid, and the solution becomes nearly colorless, but on the addition of water the color returns, and the operator has it in his hand to make the shade of the color vary from iodine-red or brown to deep blue; but these colors are not permanent and will not appear if free iodine is present or has been liberated.

Now, if all the above-mentioned results are considered, it will be seen that nitric acid, pure or diluted, cannot be used as a test for the strength or color of syrup of ferrous iodide, for if it is taken strong the reaction will be so great that only the color of free iodine is visible, and if the dilute acid is used it will not destroy the color of anilin-green.

ON SOME CONTITUENTS OF HOPS.

By Emery Gilbert Bissell, Ph.G.

From an Inaugural Essay.

It is pretty generally supposed that lupulin contains all the active principles of the hop. Some doubt in regard to this having been recently expressed, the writer has endeavored to settle the question, with what success may be judged from the following experiments. The best of hops were selected, those as nearly ripe as could be found during picking; from these the bracts were carefully removed; the ends next to the achenes, to which part of the bracts most of the lupulin adheres, were trimmed off with scissors; the remainder of each bract was then passed between the thumb and finger to remove the remaining particles of lupulin, a magnifying glass being used from time to time to see that the work was thoroughly accomplished. This process is a difficult and tedious one, the lupulin adhering to the bracts with considerable tenacity. The bracts were then allowed to dry,

without the aid of artificial heat, and were found to shrink about three-fourths in weight; after much perseverance one troyounce of the dried bracts was obtained. Some difficulty was next experienced in powdering them; rubbing them with sand in a mortar was first tried, and found to be exceedingly slow work; grinding in a drug mill was next attempted, but found to be simply impossible; the method finally resorted to, and found to work nicely, was to cut the bracts in pieces with shears. This may readily be done by grasping the hand full of them and passing the shears repeatedly through many of them at once, sifting out the fine particles from time to time. The powder thus obtained was exhausted with stronger alcohol, and a tincture obtained possessing a bitter taste and some odor, neither of which would, however, hardly remind one of hops. The alcohol was distilled off from the tincture, and an extract obtained weighing seventy grains. To the distillate was added some water, the alcohol distilled off at a gentle heat, and the heat then raised. The distilled water was observed to have a slight foreign odor, but could not be recognized as the odor of hops; it had no effect on litmus paper, and produced no change in color with a solution of permanganate of potassa, evidently containing not more than the merest trace of volatile organic matter.

Of the extract obtained twenty grains was reserved for further experiment, the remaining fifty grains being tried in the following manner: One-half of it was given to a healthy person; no effect being experienced, in one hour the remainder was given; no effect whatever was noticed upon either pulse, temperature or respiration. The portion reserved was dried by means of the water-bath until it ceased to lose weight, after which the weight was found to be 1·013 gram; of this, ·225 gram, or about 22 per cent., was insoluble in water; the portion soluble in water was found to give the reactions characteristic of tannin, and also to contain a small amount of bitter extractive. The amount of the extract reserved was, however, too small to admit of many experiments.

I then endeavored to determine the nature of the tannin contained in hops, 700 grains of which were exhausted with boiling water, the decoction evaporated nearly to extractive consistence, and treated with alcohol to remove the gummy matter. The alcohol was evaporated and the residue dissolved in water; the percentage of tannin was then

estimated by means of a standardized solution of gelatin containing alum; only about ^{6} per cent. of tannin could be found. The remainder of the solution was then precipitated with neutral acetate and with subacetate of lead; the two precipitates had much the same appearance, and both were soluble in acetic acid. They were each thoroughly washed, then suspended in water and decomposed with sulphuretted hydrogen. The filtrate from each was found to contain the tannin, which gave a blackish-green color with ferric chloride, and precipitated a solution of gelatin containing alum. The two solutions were mixed and the tannin precipitated with an excess of common salt, from which an unsuccessful attempt was made to entirely free it.

For the final experiment six ounces of hops were taken and exhausted with boiling water; the decoction was concentrated, treated with alcohol, filtered, the alcohol evaporated off, the residue dissolved in water, and the percentage of tannin estimated as before; only a little more than $\frac{5}{10}$ per cent. being found. The solution, being acid to test paper, was carefully neutralized with ammonia and precipitated with neutral acetate of lead, a bright yellow precipitate being obtained; the filtrate gave no reaction with subacetate of lead and contained no tannin. The precipitate was thoroughly washed, suspended in water, decomposed with sulphuretted hydrogen, the precipitate washed until the washings gave no color with ferric chloride, and the filtrate evaporated to a small bulk, and shaken with ether in hopes that the tannin might be dissolved; the ether, however, failed to take up any of the tannin, and portions of the solution were therefore treated with the following reagents: tartar emetic, which produced a nearly white precipitate on standing; ferrous sulphate, no effect; sulphuric and hydrochloric acids at once produced precipitates; protochloride of tin, no effect; sulphate of copper, no effect; solution of potassa gave a dark reddish-brown color, but no precipitate; gelatin gave a precipitate on standing. The green-black precipitate with ferric chloride certainly indicates that this is not gallotannic acid, which in other respects it resembles, and the reaction with the mineral acids would seem to show with equal certainty that the tannin is not moritannic acid, which it is stated by Wagner to resemble.

ON GARRYA FREMONTI.

By David William Ross, Ph.G.

(*From an Inaugural Essay.*)

Having obtained from Prof. Maisch a small quantity of the branches and root of the above plant, which was mentioned in the "Amer. Jour. Phar.," 1875, p. 279, and 1876, p. 234, I endeavored to procure a larger supply from California, but without success; my experiments were therefore not as satisfactory as I could have wished, but I have nevertheless succeeded in isolating a bitter principle, which, from the tests, seems to be an alkaloid, for which I propose the name of *Garryina*. It was obtained by the following process: Two troyounces of the dried leaves were exhausted with alcohol, and about two pints of a dark-green tincture obtained. It was concentrated to about two fluidounces, an equal bulk of water was added, which precipitated the resinous matter. The filtrate had a dark-brown color, a very bitter taste and an acid reaction to litmus paper. The precipitated resin, when washed with water until tasteless, was of a light yellow color. Part of the filtrate was acidulated with muriatic acid and iodo-hydrargyrate of potassium added, which gave a white precipitate. Ammonia water added in excess changed the color to a dark greenish-yellow. Petroleum benzin or ether, agitated with the solution, did not extract any of the bitterness. Chloroform was agitated with the ammoniacal solution in six separate portions, being allowed to remain in contact each time for twenty-four hours, with frequent agitation, then separated and evaporated spontaneously; a light-brown very bitter substance was left, having an alkaline reaction, and being soluble in alcohol, slightly in water. It was dissolved in water acidulated with muriatic acid, digested with animal charcoal, and filtered. The filtrate was very bitter; after being evaporated over a water bath and set aside for a few days, a few cubical crystals were obtained, which had a bitter taste, were soluble in alcohol and water, and gave the following reactions: With sulphuric acid after a few minutes a purple color; with chromate of potassium and sulphuric acid first a red, then a yellow and lastly a green color. Its aqueous solution was precipitated by iodo-hydrargyrate of potassium.

Besides the garryina, the leaves contain resin, chlorophyll, tannin and sugar. They yielded five per cent. of ash, containing salts of potassium, calcium, iron and magnesium. The root contains the same alkaloid, answering to the same tests, and obtainable by the same pro-

cess, except that digestion with alcohol was found to be advantageous. The root contains also resin, starch and sugar, and yielded two and one-half per cent. of ashes, in which the same bases were found as in the ashes of the leaves.

ABSTRACT OF PAPERS

Read at the June and October meetings of the Alumni Association of the New York College of Pharmacy.

Examination of Water from a Well near Wichita, Kan. By J. W. BALLARD, Davenport, Iowa.—The water was perfectly clear and not unpleasant to the taste. On evaporation to one-half its volume no precipitate appeared. A portion was mixed with hydrochloric acid and chloride of barium, resulting in a white precipitate, indicating sulphuric acid. Chloride ammonium, ammonia and oxalate of ammonium produced a dense white precipitate, indicating lime. The water was now freed from lime by precipitation and filtration, and ammonia and phosphate of sodium added; a white precipitate occurred, indicating magnesia. Search for the other elements failed to detect more than a mere trace, therefore the writer reported the water to contain the sulphates of calcium and magnesium. On evaporating to dryness, the amount of mineral matter was 112 grains to the gallon.

The owner of the well then reported the following facts in regard to it: Water dipped from the surface of the well with a bucket (the well contained 17 feet of water) produced no sensible effect on the system; that obtained from the bottom by a pump, if used freely—as a laboring man would in the warm season—produced griping and purging. A moderate use of the water seemed to be beneficial, as the owner had formerly been troubled with bilious attacks, etc., and now enjoyed excellent health, which he attributed to the use of the water. He was formerly much troubled with constipation, but now had regular habits.

NOTE.—An examination for the possible presence of organic matter in the water appears not to have been made.—ED. AM. JOUR. PHAR.

The Granulated White Sugars of the Market. By EDWARD W. RUNYON, New York.—It was found on comparison that the several brands of supposed A No. 1 granulaed sugars of the market produced syrups of different tints, which suggested an examination of their quality.

Samples were found containing a considerable proportion of ultramarin, which after several days' standing was deposited. Syrups made from sugars having the ultramarin impurities are discolored, being usually of a pale straw color.

This adulteration and additions of sulphate of tin, alum, etc., are used by refiners in the interest of dollars and cents, and are designed to neutralize the yellow tint in imperfectly refined sugars. The practice is known among refiners as adding the complementary color.

Unquestionably ultramarin adulteration is chemically injurious, being decomposed by fruit or organic acids with evolution of sulphuretted hydrogen, which produces a disagreeable taste; aside from this serious objection, the officinal syrups, instead of being colorless and bright, are tainted and dull in appearance. Pure sugars can be had by purpurchasing from first-class manufacturers, and paying a slight advance on the price of ordinary marketable granulated white sugar.

Quantitative Test for Carbolic Acid. By A. F. NIETSCH, Brooklyn, N. Y.—The writer recommended the conversion of carbolic acid into a sulpho-carbolate, by digesting equal volumes of phenol and concentrated sulphuric acid until they have combined. Water is added to dissolve the sulpho-carbolic acid, which is filtered and treated with oxide of lead or carbonate of barium in excess. The solution of sulpho-carbolate of lead or barium is filtered, and decomposed with dilute sulphuric acid. The precipitated sulphate of barium or lead is washed, dried and calcined.

One hundred parts by weight of sulphate of barium is equal to eighty, and one hundred parts by weight of sulphate of lead is equal to sixty-two parts by weight of carbolica cid, from which the percentage composition of the tested sample can be easily calculated.

NOTE.—This process was recommended by Schaedler in 1872. See "Amer. Jour. Phar.," 1872, p. 352.—EDITOR.

Pellitory Root.—Mr. G. C. CLOSE pointed out an error in the Dispensatory under the head of Pellitory. The statement that pellitory was a powerful irritant he had found incorrect. It seemed to have only mild stimulant properties, and was used considerably in tooth washes.

NOTE.—The fresh roots of both Anthemis Pyrethrum, *Lin.*, and

Anacyclus officinarum, *Hayne*, when applied to the skin produce redness and blisters; their virtues seem to depend partly upon volatile oil, but mainly upon acrid resin.—EDITOR AM. JOUR. PHAR.

Lobelia Inflata. BY CHAS. S. PLUMB, M.D.—The writer pointed out an inaccuracy of the U. S. Dispensatory in regard to the statement that lobelia root was used in medicine. The root, according to Mr. Plumb, is almost inert, and is not found in the market. The general characteristics of the leaves, as given by the authorities, is correct, except the conclusion that lobelia is poisonous. The writer maintained the view that relaxation was the principal effect, whilst several authorities had used the term prostration to designate the symptoms following the use of lobelia herb, which is wrong, because no stupor follows, no convulsions or permanent debility, in fact, no symptoms of a narcotic poison are observed as we see in those drugs properly called narcotics.

It was also stated, in contradiction to the Dispensatory, that the drug had no cathartic properties whatever, but it produced speedy and severe vomiting, attended with continued nausea, copious sweating and great general relaxation, as described in the Dispensatory.

The writer denounced as erroneous the statement that lobelia, in large or too frequently repeated doses, produced extreme prostration and death, preceded by convulsions. In substantiation of this latter statement, he remarked that he had taken very large doses, and had seen prescribed by several physicians repeatedly, doses of one-half to two or three drachms without any injurious effect following, even when the drug had been retained in the stomach.

The detailed experiments with this drug led to the conclusion that the common reputation of lobelia was far from the truth, and that its poisonous properties had come by association with nicotina without careful analysis of its medicinal properties.

Adulteration of Oil Origanum. By J. W. BALLARD, Davenport, Iowa.—The writer is aware that pure oil of origanum is sometimes hard to find, but the specimen that came under his observation a few weeks ago was so peculiar, at least to him, that he forwards a description.

The oil was bought for pure, labeled pure, and the price liberal. It was very light-colored and had an agreeable, though not a strong

odor. It would not mix with turpentine spirits in any proportion, but when shaken would give an opalescent mixture, and soon separate. It would burn readily, but without the dense smoke that the pure oil gives. On agitating with water, three-fourths of the oil remained mixed with the water, while one-fourth appeared at the top. This layer of oil floating at the top gave all the indications of being oil of origanum, mixed readily with spirits of turpentine, etc.

From the specific gravity, color of flame, etc., the writer concluded the mixture to be one-fourth oil of origanum and three-fourths alcohol.

ON A PERCOLATING AND FILTERING STAND.

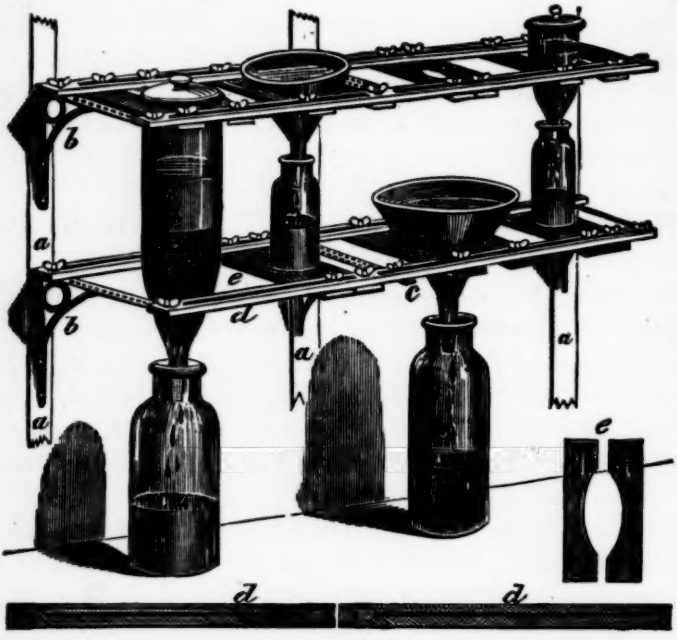
By Joseph P. Remington.

Most pharmacists are compelled to be economical of the space in their pharmacies which has been set apart for manipulations. They require the greatest amount of room for the show-cases for displaying their wares and for the accommodation of the dispensing counter and its accessories; this is particularly the case in large cities and towns, where property is relatively high in price, when it becomes an expensive luxury to possess a well-appointed laboratory, distinct and separate from the store, where all strictly chemical and pharmaceutical processes may be conducted out of sight of the customers and free from the interruptions that become so harrassing, and which, without great care, are apt to interfere so materially with the thorough performance of these duties. He who possesses plenty of room, however, and can extend at will his facilities for manufacturing has a great advantage, in this respect, over his less fortunate neighbor.

The writer has used, with a great deal of satisfaction, for the last four years a percolating stand, which is particularly adapted for the use of the pharmacist who has frequent demands for varying quantities of numerous galenical preparations, and who either makes them himself, or prefers to have all of the operations go on immediately under his own supervision. This stand was contrived with the view of accommodating vessels of different sizes and shapes, and the excellent wood-cut which accompanies this description will almost make comment unnecessary. It may be useful, however, to give the dimensions and some explanations.

Three upright strips (*a*), four and a half feet long, one and a half

inch wide and three-quarters of an inch thick, are fastened to the wall, as shown, two feet nine inches apart, over the working counter. Six iron japanned brackets (*b*), 15x9, are now fastened by screws to the upright strips, three of them in the same plane, the top of the bracket



eighteen inches above the level of the counter, and the other three in the same plane; the tops of these twenty-two inches above the tops of the lower set.

The longest limbs of the brackets are placed horizontally, and are perforated by drilling half-inch holes, one inch apart, along the edge of four of them (the outside edge is preferred), whilst two of the brackets (those designed for the middle supports (*c*) should have holes drilled on both edges. Upon the brackets the horizontal strips (*d*) are laid; these should be of black walnut or other hard wood, and are two feet nine inches long, one inch thick, one and three-quarter inches wide; a slot half inch wide, is cut into each of these horizontal strips through the middle, but not extending quite the whole length; the strip should be left solid for a distance of three inches from the ends. The cross pieces (*e*) are made of black walnut and are fifteen inches long, two

and a half inches wide, one inch thick; a slot half inch wide is cut in the same manner in them, but it does not extend the whole length, leaving one and a half inch solid at the ends. These cross pieces should be in pairs, and seven or eight pairs should be made, varying the curves, in order to better accommodate the various shaped percolators, funnels, etc., which may be used; the sides of the curved cross strips should be beveled, for the same reason. Iron carriage bolts, $\frac{3}{8}$ in., three inches long, with the nut replaced by thumb-screws, are used for fastening the horizontal long strips to the brackets, and also the cross pieces to the horizontal strips; iron washers should be used with the thumb-screws to prevent injury to the wood.

It will be seen that by this contrivance the horizontal strips may be made to approach each other (by inches, if desired) by slipping out the bolts and inserting them into the different holes in the bracket, and the cross pieces may be slipped along the length of the horizontal strips at will, or when they are needed to grasp the percolator moved to their proper position, and the percolator pushed up or down and adjusted to the proper height to suit the receiving bottle, and the thumb-screws can then be used to secure it, so that a solid, vice-like grasp prevents the percolator from tilting or getting out of position.

Funnels for filtration can of course be readily accommodated by the stand. If a large percolator is used, the top may be run up to what is sometimes called the "second story," and adjusted by the cross pieces in the upper tier, the receiving bottle resting on the counter. Smaller operations could be carried on on the first floor, but if there is no more room here, and it is required to construct more processes on a smaller scale, cross pieces may be laid on the "first floor" horizontal strips and there secured, to rest the receiving bottle on. In fact, the plan may be greatly enlarged and is susceptible of indefinite multiplication, and if wall space can be spared a third, fourth and fifth floor, or tier, may be added.

The advantages of the stand are that many operations, which would ordinarily be scattered about the working counter or carried on in different parts of the store, may all be performed in a very limited space and hence can be watched and attended to more thoroughly. The percolators or funnels may be adjusted to a nicety, so that the beaks may extend into the receiving bottles just as far as desired, and when these are full, or require transferring, it is easily done.

There is no spilling of menstruum from tilting or liability of fracture to the apparatus, as is frequently the case where funnels are inserted into narrow-mouthed bottles and there become tightly jammed. When required, muslin strainers may be used upon it for collecting precipitates by tacking the corners of a square or oblong piece of muslin upon the horizontal strips, using a dish to collect the liquid upon the counter. It may also be used as a retort stand for holding flask, retort or still, for recovering alcohol under certain circumstances.

Philadelphia, Eleventh month 15th, 1877.

SODIUM SALICYLATE.

By George W. Kennedy, Ph.G.

Read at Social Alumni Meeting, November 1, 1877.

Sodium salicylate having rapidly gained favor in my section of Pennsylvania as a remedy for rheumatism, I have been compelled to make it for the use of our practitioners. At first my method was to saturate the acid with sodium bicarbonate at the time of dispensing the prescription. This plan was slow and unsatisfactory, and to replace it I have devised the following: Take of solution of pure white caustic soda, of 20 per cent. strength, at pleasure, saturate with salicylic acid of known purity by adding the acid until no longer dissolved; filter, and evaporate on a water-bath until by stirring a fine white powder is obtained.

As thus prepared, salicylate of sodium is freely soluble in glycerin, making a straw-colored solution, and in water to the amount of 50 per cent., which solution is yellowish, of a sweetish taste at first, becoming quite acrid and unpleasant after a little time. It is insoluble in the fixed oils, oil of turpentine, benzin and bisulphide of carbon, sparingly so in ether and 95 per cent. alcohol, though more freely when hot. Its exhibition in the dose of about 30 grains daily has been attended with some quite remarkable effects in some cases of rheumatism in which other remedies have failed.

STREET DUST.

By Henry G. Debrunner, Chemist.

It has been lately stated in several scientific periodicals that the dust of the active thoroughfares of Paris, London and other large European

cities, contained 35 per cent. of metallic iron, given by the shoes of the horses to the stones, besides from 30 to 40 per cent. of good glue from the hoofs. These data were by no means represented as exceptional ones, it being stated that they did not vary much for a period of over two months. The glue as well as the iron were intended to be recovered, the former very probably by extraction of the dust with boiling water, the latter by reduction of the resulting insoluble residue, now containing over 50 per cent. of metallic iron, in small blast-furnaces. Thinking that the dust of the most active thoroughfares of our smoky city should fully equal any "European" dust, at least in regard to the percentage of iron, I collected samples from different parts of our city, and subjected them to analysis, with the following results:

Dust from Thirtieth and Smallman streets, Pittsburgh. Sample taken Sept. 22, 1877.

Moisture,	1·2050 per cent.	
Carbonic acid,	1·0400	Total loss on ignition, 46 8407 per cent.
Glutin,	0·9210	
Bitumen and other volatile organic matter,	17·5720	
Fixed carbon,	26·1027	
Silicic acid,	30·4314	
Phosphoric acid,	2·1982	
Sulphuric acid,	0·9633	
Ferric oxide,	12·2203	
Alumina,	2·3132	
Manganic oxide,	0·0625	Ash, 53·1593 per cent.
Lime,	3·2174	
Magnesia,	1·4720	
Alkali chlorides,	0·2330	
Ammonia,	trace	
Loss,	0·0480	
	100·0000	

Metallic iron = 8·55 per cent.—in HCl extract 6·74 per cent. Glutin = 0·921 per cent. in aqueous extract. Soluble in water 1·10 per cent. (leaving 0·2 per cent. ash). Ashes on ignition, subsequent to extraction with hydrochloric acid, 41·5 per cent.—soluble SiO_2 = 0·31 per cent.

Ashes from samples of dust taken from different parts of said streets amounted to 50·25, 50·91, 51·92, 49·94, 53·16, 52·25 per cent.

Samples of dust taken from center of crossing of said streets:

Moisture,	1·20 per cent.
Volatile organic matter,	18·65
Fixed Carbon,	27·90
Ash,	52·25
	100·00

This dust was of a deep black color. On ignition, combustible hydrocarbons—bitumen—originating from coal, were liberated, of which said dust coniained at least from 30 to 35 per cent. Previous to analysis the dust was sifted through a moderately fine sieve.

As to the estimation of glutin I used the following method: 100 grams of dust were extracted with strong boiling alcohol, to which a few drops of caustic soda solution had been added to render it slightly alkaline. The dust thus extracted was then dried on a water-bath to expel the alcohol, and boiled with 500 cc. of distilled water. The alcoholic extract contained a brown coloring matter, and decomposed organic substances in small quantity, for the extraction of which I had applied this treatment with hot slightly alkaline alcohol. The subsequent aqueous extract contained dissolved glutin, which was weighed after evaporation to dryness on a water-bath. It was finally ignited, and the weight of the ashes deducted from the one previously obtained.

In the following analyses the treatment of dust with alcohol was omitted; the glue was estimated on evaporation of the aqueous extract to dryness in a tared platinum dish, and deduction of the ashes on subsequent ignition.

	1.	2.	3.	4.	5.
Moisture,	0·927	1·179	0·725	1·512	1·534 per cent.
Volatile organic matter,	9·928	5·734	6·152	2·492	3·143
Fixed carbon,	6·847	10·295	13·874	7·524	20·108
Ash,	82·253	82·792	79·249	88·472	75 215
	100·	100·	100·	100·	100·
Iron,	6·84	9·69	7·41	5·130	5·71
Glue,	6·214	0·602	1·272	3·521	4·731

No. 1 was dust from the horse-track on Penn street, near Union Depot, and was of a grey color. No. 2 was from Smallman and 31st streets, and also contained coal, recognizable by the liberation of combustible hydrocarbons—bitumen—on heating.[1] No. 3 was taken from main road of Black Diamond Steel Works, and was of a dark-grey color and contained coal. No. 4 was dust from 32d and Liberty sts., free from coal, and of a light-grey color. No. 5 was collected from Penn, between 30th and 31st streets. Some dust and debris was taken

[1] I am aware of the fact that glue, besides leaving a carbonaceous residue, also forms combustible gases on ignition, requiring, however, a higher temperature than necessary for the liberation of bitumen from coal.

from a road near East Liberty Stock-yards, Pittsburgh, and without being sifted yielded glue, 16·242 and iron, 5·722 per cent.

The abrasions from rails of the horse-track on Penn street form a grey, almost metallic, sandy powder, containing 32·12 per cent. of metallic iron partially non-oxidized, while in the other samples this metal existed in form of sesquioxide. The limited quantity of this material, although nearly as rich in iron as a poor ore, prevents any utilization.

As to the quality of the glue, it may be stated that it is very impure and has a rather bad odor. It however possesses all the characteristic properties of glue; its solution forms a jelly when cooled; tannin, alum and alcohol precipitate it flocculently, while it has at the same time adhesive power to a certain extent. Iron as well as glutinous matter, however, are present in too small a quantity to be of any technical significance.

Although badly disappointed, I am now fully convinced that these new branches of glue and iron manufacture "won't do" for Pittsburgh, while perhaps at the same time my analyses of street dirt may be of interest to some of the readers.

Black Diamond Steel Works, Pittsburgh, Nov. 17, 1877.

GLEANINGS FROM THE FOREIGN JOURNALS.

BY THE EDITOR.

Expressed Oil of Almonds.—J. D. Bieber, manufacturing chemist at Hamburg, communicates the following reagent as a reliable test for this oil: Equal weights of pure concentrated sulphuric acid, red fuming nitric acid and water are mixed and the mixture allowed to cool. The test is applied by mixing five parts of the oil with one part of the acid liquid, when *pure almond oil* will give a yellowish-white liniment; *oil of peach kernels* assumes red color of peach blossoms, turning to dark orange; *benne oil* turns pale yellowish-red, then dirty orange-red; *poppy* and *walnut oils* yield a somewhat whiter liniment than almond oil. This test permits the detection of 5 per cent. of peach kernel and benne oil.

Mixed with pure nitric acid, spec. gr. 1·40, *almond oil* yields a pale yellowish liniment; *peach kernel oil* a red, *benne oil* a yellowish-green, afterwards reddish, and *poppy* and *walnut oils* a white mixture.

It was found that the oil expressed cold or warm, from fresh almonds or such as had been kept up to ten years, gave the same reaction. Most of the commercial oil was found to be adulterated with the oil of either peach kernels or benne seed.—*Apoth. Zeit.*, No. 41.

Cantharidin.—J. Piccard observed the correctness of older observations, that cantharidin becomes soft at 210°C. (410°F.), and fuses at 218°C. (424·4°F.). F. Krafft having found its vapor density near 6·60, the author doubles the usually accepted molecular formula to $C_{10}H_{12}O_4$. When heated with hydriodic acid of about sp. grav. 1·8, it is gradually converted into *cantharic acid*, which, after purification, is crystalline, soluble in 120 p. cold and 12 p. boiling water, very soluble in alcohol, sparingly in ether, and not vesicating when its solution in glycerin is applied to the skin. It has the same composition as cantharidin, but it is monobasic.—*Ber. deutsch. chem. Ges.*, 1877, 1504—1506.

Nucin or Juglon.—C. Reischauer's analyses render it probable that this body is allied to kinone, $C_6H_4O_2$, but contains less oxygen. Its composition seems to be $C_{18}H_{12}O_5$. On mixing its alcoholic solution with a solution of neutral acetate of copper, a red coloration and a copious precipitate of bronze colored microscopic crystals is obtained, which have a metallic lustre, and when dried at 100°C. were found to contain 15·83 per cent. of copper.—*Ibid.*, 1542—1548.

Phosphide of tin is at present an article of commerce, and is technically employed in place of phosphide of copper for the preparation of phosphor-bronze. S. Natanson and G. Vortman have prepared it, 1, by heating a mixture of 3 p. glacial phosphoric acid with 1 p. charcoal and 6 p. tin; 2, by fusing glacial phosphoric acid with tin; 3, by passing phosphorus vapors over tin fused in a current of hydrogen (Vigier's method, 1861), and 4, by throwing phosphorus upon fused tin (Pelletier and Landgrebe's process, 1829). The products were silvery-white and foliaceous, contained between 96 and 98 per cent. of tin and were soluble in muriatic acid, with the evolution of phosphoretted hydrogen. If heated with nitric acid for a short time, then just sufficient muriatic acid added to dissolve the stannic acid, and again heated for some time, yellowish scales of a metallic lustre are left, which contain 75 per cent. of tin, and, when boiled with caustic potassa, yield a brown-yellow solution and silvery scales, containing

79·53 per cent. tin. The formula SnP requires 78·89 per cent.—*Ber. deutsch. chem. Ges.*, 1877, p. 1459—1461.

Compound of Thymol and Quinia. By C. Pavesi.—The author reports that he has obtained a crystalline compound which he calls citro-thymolate of quinia, by treating quinia with thymol and a small quantity of citric acid. Four parts of quinia are placed in a matrass or flask with 6 parts of oil of thyme and a sufficient quantity of alcohol to effect complete solution. The mixture is heated in a water-bath for a few minutes, afterwards allowed to stand during twelve hours, and then 2 parts of citric acid in powder added. The whole is again heated, filtered, and the liquid evaporated to a syrupy consistence. Upon cooling, a yellow matter is deposited in confused crystals. This substance is treated with boiling water and animal charcoal, filtered and evaporated at a low temperature; after twenty-four hours the salt is obtained well crystallized.

This crystalline compound of quinia, thymol and citric acid, is very white, moderately soluble in cold water, more soluble in boiling water, and very soluble in alcohol. It has a very bitter taste recalling that of oil of thyme. The presence of the three constituents in the crystals can be demonstrated by the use of suitable reagents; but the exact composition has not been determined by the author.—*Phar. Jour. and Trans.*, Sept. 22.

Hypophosphoric Acid.—When phosphorus is left in contact with air in a moist atmosphere, it yields an acid liquid containing phosphorous (H_3PO_3) and phosphoric (H_3PO_4) acids. Th. Salzer has recently found in it a new acid, which he calls hypophosphoric acid. It is bibasic and has the formula H_2PO_3. Its aqueous solution is colorless, inodorous and not altered by boiling unless evaporated to a syrupy consistence when it is decomposed by heat into phosphoric and phosphorous acids. Nitric acid does not affect it, until by concentration in the heat the decomposition just mentioned has taken place, when the whole is oxydized to phosphoric acid. Most of the other oxydizing agents have a similar behavior, except potassium permanganate, which oxydizes it slowly in the cold, but rapidly on boiling. The ordinary deoxidizing agents have no effect. It yields a crystalline precipitate of acid sodium hypophosphate in a concentrated solution of sodium acetate, and white precipitates with lime and baryta water, ferric chloride,

and with mercuric, mercurous and silver nitrates; the last two remain white on boiling.

A solution of hypophosphate does not precipitate the chlorides of platinum, gold or mercury; but yields with magnesium sulphate a crystalline precipitate soluble in ammonium chloride; with barium chloride, a white precipitate; with alum and zinc sulphate, gradually, gelatinous precipitates; with ferrous sulphate a whitish, with cobalt nitrate a reddish, and with cadmium sulphate a white precipitate.

The two sodium salts have the composition $NaHP_2O_3,3H_2O$ and $Na_2PO_3,5H_2O$.—*Zeitschr. Oest. Apoth. Ver.*, No. 27—*Ann. d. Chem.*, Vol. 187.

Detection of Traces of Iodine.—E. Filhol recommends to extract the iodine in the usual manner, by evaporation with a little potassa to dryness, treating with alcohol, evaporating this solution, and redissolving the residue in a few drops of water; this is mixed with a few drops of muriatic acid, then with some chromic acid, and agitated with a little carbon bisulphide, which acquires a violet color. $\frac{1}{50}$ milligram of iodine may thus be detected.—*Zeitschr. Oest. Apoth. Ver.*, No. 27 *Jour. de Phar. et de Chim.*, May.

Mercurous Iodide.—Schlagdenhauffen has examined the various processes recommended for preparing this compound and arrived at the conclusion that, even after prolonged trituration of mercury and iodine in the proper proportion, there results a mixture of metallic mercury and mercurous-mercuric iodide. If prepared by double decomposition of mercurous salt (nitrate) and potassium iodide, a mixture results of variable proportions of the same constituents, and if a sufficient excess of potassium iodide is employed, the yellow precipitate disappears with the formation of potassio-mercuric iodide, leaving metallic mercury behind.—*Jour. Phar. d'Alsace-Lorr.*, 173—176.

Syrup of Ipecacuanha.—A. Martin proposes to prepare this syrup from the hydro-alcoholic extract of ipecacuanha, by dissolving it in water and evaporating the solution again to an extract containing 15 per cent. of moisture. A syrup corresponding to the requirements of the Belgian Pharmacopœia is obtained by dissolving 1·50 grm. of this aqueous extract in sufficient warm simple syrup to obtain 1,000 grams. The advantages of the process are exact and uniform strength, recovery of all the alcohol, and easy preservation without becoming mouldy like the simple alcoholic extract.—*Jour. Phar. d'Anvers*, 361—363.

Syrup of Orange Peel.—A. Martin obtains an excellent product by drying the orange peel, preferably the kind known as Curaçao, occurring in bands, by enclosing it in a tinned iron vessel containing a bottle half filled with burnt lime, and the cover of which is luted with flour paste and paper. After remaining for eight days in this desiccator the orange peel is dry enough, without having lost any of its aromatic principles, to be easily reduced to powder; this is then exhausted by precolation with water at the ordinary temperature, and the infusion heated to about 70°C. (158°F.) to coagulate the albumen, filtered and converted into syrup in the usual manner.—*Ibid.*, 364, 365.

Oil of Angustura-bark was obtained by Oberlin and Schlagdenhauffen to the amount of 1·9 per cent. It possessed the spec. grav. ·934, boiled at 267°C. (512·6°F.), and turned polarized light +5·4°. Iodine turns the warm oil to a green mass, gradually becoming thicker. Bromine changes to blue, purple and brown, leaving in the cold a hard, friable mass. Chlorine thickens the oil; potassium has little action; nitric acid colors gradually yellow and rose-red; chromic acid, with some ether and alcohol, produces a beautiful red color; iodic acid and alcohol rose-red, then orange; ferric chloride and ether carmine red, the coloration disappearing by more ether.—*Jour. de Phar. et de Chim.*, August.

Nitrate of pilocarpina is obtained in white lamellate crystals by displacing powdered jaborandi leaves with 80 per cent. alcohol, containing per litre 8 grams of muriatic acid; the tincture is distilled, the extract dissolved in water, filtered, rendered alkaline by ammonia, and repeatedly agitated with chloroform. The solvent is distilled off, the alkaloid exactly neutralized with nitric acid, the liquid filtered, evaporated and crystallized. The crystals are washed in a cylindrical percolator with cold absolute alcohol to remove coloring matter, and recrystallized from boiling alcohol in presence of some granular animal charcoal. The filtrate yields beautiful white crystals (about 5 grams for 1000 grams of the leaves), which are soluble in 8 parts of water at 15° C., in 7 parts of boiling absolute alcohol, and but sparingly soluble in the latter liquid when cold.—*Rép. de Phar.*, Aug. 25.

Pepsin.—Andouard scrapes the inner coat of the stomach, and adds to the mass table salt to precipitate the pepsin, as proposed by Scheffer ("Amer. Jour. Phar.," Feb., 1872). The precipitate is put upon a

dialyser to free it from sodium chloride; pepsin again dissolves, and is mixed with an equal weight of glycerin. This solution keeps well, and its activity is not impaired by keeping it for two years without special precautions.—*Jour. de Phar. et de Chim.*, Aug.

CULTIVATION of MEDICINAL PLANTS at HITCHIN.

By E. M. Holmes, F.L.S.

Curator of the Museum of the Pharmaceutical Society.

The neighborhood of Hitchin is one which is intetesting on many accounts. The spot which Dickens has immortalized as Tom Tiddler's Ground is within a few miles of the town. The geologist will notice here the outcrop of the London basin, and the antiquary will meet with much to examine in the way of flint implements and other ancient relics. The botanist will find in the spring abundance of the rare *Anemone Pulsatilla* within a few miles of the town, and cannot fail to admire the row of ancient box trees, with trunks fully a foot in diameter, and about twenty feet high, which are conspicuous by the roadside near the centre of the town. These are probably the largest and oldest box trees in England. A curious feature in this district is the straw plaiting, which is carried on almost mechanically by women, even as they walk along the streets or through the fields to their work; their eyes keenly observant of all around them, and their talk seasoned with remarks, often more shrewd than polite, upon the passers-by. On a Tuesday, which is the market day, the town often presents a busy scene, sometimes as mueh as £1,000 worth of straw plait changing hands in one day. This is chiefly bought up by middlemen from Luton and Dunstable, who supply the peasantry with prepared straws for the purpose. For the pharmaceutist, however, the chief attraction of course lies in the fields of medicinal plants which are scattered all around the town.

The plant which is most extensively grown in the neighborhood of Hitchin is the lavender (*Lavandula vera*, D. C.). The cultivation of this plant was commenced in 1823, by Mr. Perks, and at the present time is carried on by his son, and also by Mr. Ransom, who commenced its cultivation in 1847. It is to these two gentlemen that our readers are indebted for most of the interesting facts which are embodied in this paper. Both these gentlemen have received medals for the ex-

cellence of their productions, Mr. Perks for oil of lavender, and Mr. Ransom for essential oils and pharmaceutical products generally.

The crop at present grown is much affected by the presence of a disease which attacks the plants just as they are beginning to flower, and causes them to wither away by degrees. This disease occurs not only at Hitchin, but also at Mitcham (in fact, it appeared at Mitcham before it was known at Hitchin), and so far as I have been able to ascertain at all the localities in which lavender is grown. To such an extent has it occurred at Market Deeping in Lincolnshire that Mr. Holland, who formerly cultivated lavender there, has now ceased to grow it. The disease prevailed to a considerable extent this year, and on this account and by reason of the smallness of the crop, the price of oil of lavender will probably be unusually high.

The history of the cultivation of lavender reveals some curious facts which may perhaps throw a little light upon the probable cause of this disease. Formerly the plant was propagated by slips taken from the branches, for the plant does not ripen seed. Whether or not it has lost the property of ripening seed through cultivation, as has been the case with the rhubarb plant at Banbury, I have not been able to ascertain.

In the winter of 1860, owing to a very severe frost, nearly all the lavender plants were killed, and to secure a crop for the next year, instead of taking slips, the roots were parted, and from that time to the present the same mode of propagation has been continued. About this time (1860) the disease first appeared.

Plants which are obtained by parting the roots of one year old plants are much more vigorous and less liable to the disease than those obtainod by dividing the roots of those of two years' growth.

The first appearance of the disease is indicated by the leaves of one or more branches drooping and withering away; and the remainder of the plant becomes affected by degrees. When the root of a diseased plant is pulled up the rootlets appear fewer in number than in a healthy plant, and the woody portion from which the rootlets spring is often covered with a white filamentous mycelium, but sometimes only presents a dark color and wet appearance internally.

The appearance of the disease just as the plant has begun to flower, and the fact that the plants now come to maturity in about three years, whereas they used to last five or six years, seems to indicate that the

tendency to produce flower and foliage has been stimulated to a greater degree and caused a greater demand upon the root than it is able to meet. The vitality of the plant has probably been lowered by years of reproduction from the stem instead of in the way that nature has appointed, viz., by the seeds. The method of propagating at present adopted is certainly one that is very likely to continue the disease, since it may be latent in the divided root of apparently healthy plants. That the disease is not likely to be owing to difference in soil is shown by the fact that fresh soil or otherwise, manure or no manure, make no difference in its appearance.

The method of cultivation is as follows:

The harvest of lavender flowers is rarely over until the middle of September, so that it is not possible to get the ground cleared and ready for the fresh plants before the end of October or beginning of November. The ground which is to be planted is generally manured beforehand with thirty to forty-five tons of stable manure per acre, but manure is not applied afterwards until a fresh planting takes place. The roots of the old plants are parted sometimes from two, but preferably from one year old plants, and the sets dibbled in rows about eighteen inches apart. The young plants make a start in growth in March, if the weather be mild with gentle showers, and increase considerably in size in April and May, so that the tufts become on an average about a foot in diameter. If, however, there occur heavy rains so that the leaves are much splashed with soil, the growth is somewhat stopped. In hollows, or where the damp is liable to remain, the young flowering stems, if there be frost in May, are frequently nipped, and the plant either dies or does not send up fresh flower-stalks until the end of June, making the harvest a late one. Black frosts do not, however, injure the plants.

The sets, if made by parting the roots, flower the first year; if, however, slips from the branches are taken, they are not allowed to flower the first year lest the young plants should be weakened thereby, but the flower shoots are clipped down close to the stem.

In the second year every alternate plant is removed in the autumn and planted elsewhere, leaving the others one yard apart. The second year the plants attain a diameter of about 15–18 inches, and in the third year the tufts are from 2 to 2½ feet across.

Shade has a pernicious effect upon the plant; under the shadow of

trees they become starved and produce scarcely any flowers. The growth of other plants between the rows also injures the crop. Weeds too have to be kept down. In order to prevent injury to the roots of the lavender plants while removing the weeds, Mr. Perks uses an instrument of sufficient width to pass easily between the rows, and composed of a number of hoe-like blades, the upper portion of the instrument being like a plough. By means of this apparatus he is enabled to cut off the weeds just below the surface of the ground, and at the same time to avoid injuring the tender roots of the lavender. The plants grow best and produce most blossom when they have plenty of room and sunshine. If too crowded, flowers are only produced from the centre of the tufts and not from the sides where the plants come in contact with each other.

The weather has considerable influence upon the yield of essential oil. If the days are bright and sunshiny during June and July the yield will be a good one, but if wet and dull very often not half the average will be obtained. Mr. Perks informs me that a 200 gallon still will yield about 1¼lb. of essential oil in a good season, but in a bad one, as in the present year, barely twelve ounces.

The time at which the flowers are gathered also appears to modify the yield, Mr. Ransom giving as the result of his experience that the product is very much reduced if gathered after the first week in September, the largest quantity of oil being obtained about the middle of August.

In collecting the harvest, which usually begins about the first week in August, the flowerstalks of one plant are grasped as far as may be with one hand and a sickle is used with the other. They are (by Mr. Ransom) then packed in eight-bushel sacks, and carried direct to the still, about fourteen sacks going to a 1,000 gallon still; or they are tied up in bundles weighing about twenty-two pounds (by Mr. Perks) and as much as possible of the stalks afterwards cut off and the still then filled up with the flowers. The distillation is commenced at four or five o'clock in the morning, and the still is filled four times a day, the men leaving work at 10 P.M.

The distillation of each quantity takes about two and a half hours, the largest portion of oil coming over during the first hour and a half. A considerable time is of course taken up in filling and emptying the still. The flowers are trodden down in the still by boys, who for the

first day or two are often severely stung by the bees which cling most pertinaciously to the blossoms, and appear to be quite intoxicated with the honey of the lavender, especially towards the end of the season.[1]

The water which comes over with the oil during the first hour, being slightly impregnated with oil, is returned to the still, but that which comes over afterwards is allowed to run away.

The oil which comes over after the first hour and a half is either redistilled or sold as inferior quality. The refuse when removed from the still is thrown into heaps, and when decayed is returned to the lavender fields. In a good year the lavender yields from four to six Winchester quarts[2] of essential oil per acre, and as about fifty-three acres altogether are cultivated the average yield of oil for the whole of Hitchin is about two hundred and forty Winchester quarts per year.

The quality of the oil is said to be affected by the soil and situation in which it grows, so much so that Mr. Ransom informs me he can distinguish the oil obtained from different fields by the odor alone. The oil is improved by keeping, up to three years, after which it begins to deteriorate unless mixed with spirit.

Redistillation also improves the quality of the oil, but unless conducted by steam heat the loss sustained is not compensated for by increase in commercial value, the loss being nearly one pound in the gallon.

The stems are not distilled, as the oil obtained from them is of very inferior quality, and is so small in quantity that it does not pay for labor and fuel.

The lavender grown by Mr. Ransom is distilled by steam heat, by which any tendency to an empyreumatic odor is avoided.

Belladonna.—About eight acres are grown of this plant, from which extract is made on the spot. The plants are raised from seed, and being perennial are grown on the same ground from seven to ten years, when they are replaced by fresh ones.

The crop is not cut the first year, but in the middle of June of the second year, and again at the end of September. The plants usually attain the height of rather more than two feet, but if heavily manured they will grow much larger. It is found, however, that in plants

[1] After the first day or two, according to Mr. Ransom, the boys become so insensible to the poison that they feel but little pain when stung.

[2] A Winchester quart holds about five pounds avoirdupois.

which show large leaves and grow rapidly the medicinal properties are less powerful in proportion, even the odor of the plant being weaker.

This is somewhat analogous to what is known of the cinchona trees, in which as a rule, the smaller the leaves the larger the yield of alkaloid. About five pounds of extract are obtained from one cwt. of herb.

Hemlock.—Very little hemlock is grown, the wild plant being preferred. It is said to be plentiful in the neighborhood, nearly twenty tons of it being sometimes made into extract in one year by Mr. Ransom. From four to six pounds of extract are obtained from one cwt. of herb.

Squirting Cucumber.—Only two to three acres of this plant are grown every year, there being comparatively little demand for elaterium in this country. The plants are earthed up in winter like celery and require plenty of manure applied annually. The yield of elaterium depends much upon the weather, very little being obtained in a wet season. If the month of August is fine and dry the yield is not only larger but of superior quality. The drug as prepared by Mr. Ransom is of a fine ash green color and comparatively sweet odor. This result is obtained by pouring off the supernatant liquor as soon as possible after the elaterium has deposited. If this be not done, fermentation is soon set up and the product depreciated in quality. Although Mr. Ransom probably grows more than any one else in England, the demand is so small that some wholesale houses have often not purchased more than two ounces in twelve months. That which is exported goes chiefly to Russia.

Henbane.—About five or six acres of the biennial plant are grown on the average; but the quantity varies very much, being almost a total failure in some years. Mr. Ransom's experience corresponds with that of Mr. Usher, of Banbury, as regards the uncertainty attending the appearance of the plant from the seed. Indeed in one of the fields at Hitchin, in which lavender plants two years old were in blossom at the time of my visit, only the biennial henbane had come up, which had been sown before the lavender was planted there.

A small quantity of marshmallow is also grown by the riverside, where it does well.

The above are, I believe, the leading medicinal plants which are grown in the neighborhood of Hitchin.

Mr. Ransom produces at his extensive laboratory a very large number of extracts, essential oils and liquors, and many of these in very large quantity, using as much as 40 tons of dandelion root per annum. Some of the extracts are such as are rarely asked for in retail shops, but for which there must be local demands. Among these were noticeable the extracts of sarsaparilla, *Actæa racemosa*, *Chelidonium majus*, *Datura Tatula*, *Saponaria officinalis*, wormwood (*Artemisia Absinthium*), angelica (*Archangelica officinalis*), centaury (*Erythræa Centaurium*), pulsatilla (*Anemone Pulsatilla*), blessed thistle (*Carduus benedictus*), walnut (*Juglans regia*), white horehound (*Marrubium vulgare*), buckbean (*Menyanthes trifoliata*), St. Ignatius' bean (*Strychnos amara*), senega, and the alcoholic extract of belladonna and ipecacuanha. The extract of Ignatius' bean is used for epilepsy and goes chiefly to Australia and China. To give an idea of the extent to which some of these uncommon extracts are used, it may be stated that as much as thirty or forty pounds of extract of *Ignatia amara* is turned out annually. All these extracts are made in steam evaporating pans, the juice being in many cases expressed from the plants or roots under an hydraulic pressure of 300 tons.

A prominent feature in the laboratory is the apparatus for making scammony resin from the root. This is obtained by percolating hot spirit through the powdered root. As expression of the root after percolation would involve considerable loss, and the last portion of spirit has to be displaced with water, considerable trouble has to be taken in freeing the resin from aqueous extract. In dissolving the resin of scammony of commerce in ether a small amount of insoluble matter will often be found, which is probably matter of this kind. Economy of fuel is provided for as far as possible by causing the hot water from the steam pans, etc., to pass into a large tank from which it is pumped by the engine into the boiler, etc., as required. The latest improvements have been adopted, even to the use of a patent for preventing the escape of steam while allowing the hot water to escape.

In conclusion, one word of caution is necessary to those who may feel inclined to visit Hitchin. The lavender fields are a sight well worth seeing when in full flower; the handsome red admiral (*Vanessa atalanta*), the tortoiseshell (*V. urticæ*), the gorgeous peacock (*V. Io*), the brimstone (*Gonepteryx rhamni*), and even the clouded yellow butterfly (*Colias edusa*), as well as many commoner species, are to be seen in

great force hovering over the lavender flowers. But let not the visitor be tempted to chase the lovely insects, for most formidable and by no means beautiful is the harvest insect, which seems to have an equal predilection for lavender fields and manifests a peculiar desire to leave an impressive reminiscence with all who venture among the blossoms, and no one who has made its acquaintance there will ever forget Hitchin.—*Phar. Jour. and Trans.*, Oct. 20, 1877.

CARDAMOM CULTIVATION IN MYSORE.

Some time in February or March the felling party, one-half of them provided with axes, and the rest with large hack-knives for clearing the underwood, proceed to the forest and commence operations by building, near some stream, a temporary hut to shelter them at night. The next morning the head man of the party, who is necessarily well acquainted with the forest, and who has previously chosen the sites for the projected gardens, points out to the coolies the trees that are to be felled. Half of the party then commence to clear the underwood, while the remainder set to work with their axes and fell the large forest trees. The Coorgs have an idea that it is of great importance that the ground should be well shaken by the fall of some heavy tree, and if from any cause a tree does not crash down with sufficient force, they fell another across it. Each plot generally consists of about the tenth part of an acre, and care is taken to leave about twenty or thirty yards of jungle between each garden, as well as not to make too many gardens in one year, lest there should be a too great and sudden diminution of the moisture, which is so much required by cardamom plants. From fifty to one hundred gardens are made annually, until the whole jungle is under cultivation. If represented on a plan a cardamom jungle fully cultivated would be not unlike a checkered board. In May, during the early rains of the southwest monsoon, the young plants shoot up in all the cleared grounds, but especially near to the root and stem of the fallen tree. By the October following they will have grown three or four inches, and by the ensuing February will have attained a height of about one foot, with from eight to ten leaves on each plant. The seeds ripen in October, and in the fourth year, or about three years and a half from the springing of the plant, a small crop, called by the Coorgs "God fruit," will be gathered. At this

time each rhizome will have grown up two feet; the garden must be annually weeded. When they have reached the height of about four feet, or say in the third year, a little culling will be required, for each plant must have six feet of clear ground left round it. In removing superfluous plants, care must be exercised in preserving the strongest and healthiest specimens. In the fifth year the plants will give a good crop, and will probably continue to do so for the following seven years, when they will begin to present a sickly and exhausted appearance. It will then be necessary to select some large trees from the surrounding jungle, and fell them right across the sickly plots. This is generally done during the months of February and March, when the lands were originally prepared for cardamoms, but may also be done with great advantage some month earlier. Young plants will then spring up as before, and many of the old plants will have their stems and and racemes killed by the fall, but from their rhizomes fresh stems will shoot, and the plants will bear with increased vigor for the next eight years, when the same process of renovation will have to be gone through again. The year in which the forest trees are thus felled the cardamom plots naturally give but little or nothing, and during the ensuing year but a light crop will be gathered; but this very much depends upon the quality of the soil, and on this also depends the early or late coming into bearing of the original garden. A cardamom jungle, if thus carefully worked, never becomes exhausted, and the cultivation may be continued on the same land for an indefinite period. One rhizome will often have over twenty stems, and, as these die off (and they seldom last longer than seven or eight years), fresh ones spring up to supply their place. The fruit is occasionally borne on the upper part of the stem, but this is extremely rare, and I may mention that in Munzerabad I have never seen or heard of an instance of this departure from the ordinary habit of the plant. When from the stem four racemes are thrown out it is called by the natives the true or full crop; if three only, three-quarter crop; if two, half crop; and if one only, quarter crop. One raceme will have from eight to fourteen branches, and each branch from three to six pedicles. When the plant is grown under the most favorable conditions, these branches are grown close together; when, however, the conditions are unfavorable, the racemes are long and weak, and the branches far apart.—*Jour. Applied Science*, Oct. 1, 1877, from *Elliott's Planter in Mysore.*

THE ACID OF WILLOW BARK.

By D. B. Dott.

The chemistry of the willow seems to have been little studied, and what attention it has received has been almost entirely devoted to its active principle, salicin. All the information I have been able to obtain regarding the constituents of the bark is very meagre, the majority of works on chemistry and materia medica merely mentioning that salicin is extracted therefrom; while, curiously enough, the "Pharmacographia," of Flückiger and Hanbury, omits all notice of the subject. Neligan states (authority not given) that the bark contains resinous matter, gum, chlorophyll, tannin, an organic salt of magnesia, and salicin; and that is as complete an account as I have found in any of the other books.

When an infusion of willow bark is made the liquor is distinctly acid to litmus. In the preparation of salicin by Erdmann's process this acid is neutralized by the excess of lime, and the salt thereby formed passes into solution. On evaporating to dryness and exhausting the residue with spirit the salt is redissolved and remains in the spirituous solution after the salicin has crystallized out. The salt may be obtained by distilling off the spirit and allowing the residue to crystallize. These crystals are then purified by recrystallization from water. Thus prepared the lime-salt separates in the form of a cauliflower-like mass, composed of radiate groups of prismatic crystals.

A portion of those crystals when heated fused, and inflamed, left a residue of calcic carbonate, indicating an organic salt of lime. It was found that the substance lost weight but slowly in the exsiccator, and likewise in the water-bath. A portion of the air-dried salt was therefore dried in the air-bath at 130°C. 9·140 grs. lost 2·745 grs.=30·03 per cent. In another determination with a different crop of crystals 7·85 grs. lost 2·275 grs.=28·98 per cent. A quantity of the salt was then incinerated in a platinum crucible, the residue being treated with excess of sulphuric acid and the crucible again ignited. 6·41 grs. gave 4·00 grs. $CaSO_4$=1·176 grs. Ca=18·34 per cent. In the second determination 6·12 grs. gave 3·82 grs. $CaSO_4$=1·12 grs. Ca=18·35 per cent.

One or two methods for preparing the acid were tried, the following being the process finally adopted: To a solution of the lime-salt in water solution of oxalic acid is added—not in excess. The precipi-

tate is then separated by filtration, the filtrate concentrated and extracted with ether, which dissolves the acid. The ether being now driven off, a syrupy solution of the acid is left. A few ounces were prepared by this method and placed over sulphuric acid, under a bell-glass, for two days. The acid then remained in the form of a syrup, almost odorless, with an intensely sour taste. As in these respects it exactly resembled lactic acid, and seeing that the calcium salt in its crystalline form and in its percentages of H_2O and Ca corresponded with calcic di-lactate, there could be little doubt that the acid under examination was lactic acid. To make more certain, however, some further tests were applied. A little was heated in a test-tube, when water and carbonic anhydrid were given off, and a residue left which shortly solidified. A portion was then boiled with sulphuric acid, which liberated an inflammable gas, burning with a blue flame—no doubt, carbon monoxide. When a small quantity was heated with sulphuric acid and manganese dioxide, a vapor smelling like aldehyd was evolved. A portion of the acid was distilled and the fraction coming over above 130°C. was evaporated and treated with cold alcohol, which separated small white crystals having the form of rhomboidal plates, and in other respects resembling lactide.

From the acid as above obtained the zinc-salt was prepared by warming with excess of zinc carbonate, filtering, and allowing to crystallize. The crystals were pressed between blotting paper and exposed for a short time to the air. In these air-dried crystals the H_2O was determined by drying in the water-bath; 6·065 grs. lost 1·125 grs.= 18·46 per cent. In a second determination with another crop of crystals 9·275 grs. lost 1·695 grs.=18·27 per cent. The zinc was determined in the dry salt by ignition in the blow-pipe flame; 6·33 grs. gave 2·12 grs. ZnO=33·49 per cent. In another determination 7·58 grs. gave 2·55 grs. ZnO=33·64 per cent.

The above numbers are here compared with those calculated for the normal calcium and zinc salts of latic acid respectively:

$Ca(C_3H_5O_3)_2,5H_2O$.

	per cent.	Found. I.	Found. II.	mean.
H_2O	29·22	30·03	28·98	29·505
Ca	18·34	18·34	18·35	18·345

$Zn(C_3H_5O_3)_2,3H_2O$.

	per cent.	Found. I.	Found. II.	mean.
H_2O	18·33	18·46	18·27	18·36
ZnO	33·38	33·49	33·64	33·56

The ZnO is too high, owing either to an impurity in the salt or to a fault in the analysis; but I had not time to examine into the matter. The zinc-salt crystallized in four-sided truncated prisms, which were insoluble in alcohol.

I am unable to state from what species of *salix* the acid was prepared but as all the samples of bark I have examined gave acid infusions, it is not improbable that lactic acid exists in all the members of the Salicaceæ.—*Phar. Jour. and Trans.*, Sept. 22, 1877.

ON THE ALTERABILITY OF CALOMEL AND THE PRECAUTIONS NECESSARY IN ITS THERAPEUTICAL EMPLOYMENTS.

By M. Jolly, Pharmacien.

Owing to the report which appeared in the Italian pharmaceutical papers on the formation of corrosive sublimate in a mixture of calomel and sugar, the president of the Society of Practical Medicine engaged the author to make some experiments to clear up all doubt on this subject.

Calomel has a decided tendency to decompose into mercury and corrosive sublimate, and many physical and chemical agents facilitate this decomposition. The author has investigated the action of these various agents, and embodies his results in the paper before us.

Heat always causes decomposition to a greater or less extent. Perfectly pure and dry calomel, sublimed alone, takes a greyish tinge from the liberation of metallic mercury.

Light causes the change into mercury and corrosive sublimate to take place rapidly, as evidenced by the change in color.

One gram of calomel digested with 100 cc. of a 2 per mille solution of acid hydrochlor. for six hours, at a temperature of 104° Fahr., yielded 3 milligrams of corrosive sublimate.

The same quantity digested with 5 per mille solution of sodium chloride yielded at the end of six hours 1 milligram of sublimate.

A 2 per cent. solution of citric acid (to represent fruit preserves, in which calomel is often administered) caused the production of one milligram of sublimate.

The hydrochloric acid and sodium chloride represent the gastric juice. When calomel passes into the intestines, it comes in contact with the alkaline secretions of the bowels.

A ½ per cent. solution of sodic hydrate, after digestion for six hours at 104° Fahr. with one gram of calomel, gave rise to six milligrams of corrosive sublimate.

Under similar circumstances a 1 per cent. solution of sodic carbonate gave rise to 4 milligrams, and a 1 per cent. solution of calcined magnesia to 3 milligrams of mercuric chloride. One gram each calcined magnesia and calomel were mixed, and at the end of 24 hours were treated with distilled water. One milligram of sublimate was found. Lime acts like magnesia. Neither carbonate of lime nor magnesia had the least effect at the end of six hours.

From these experiments the author draws the conclusion that calomel when used therapeutically must not be mixed with inferior sugars, which are always acid or alkaline, nor with the alkaline chlorides and earths, solutions containing alkaline hydrates or carbonates, or mineral or vegetable acids.—*Chem. and Drug.*, Oct. 15, 1877, from *Gazette Médicale.*

VARIETIES.

The International Pharmacopœia.—In this Journal, 1875, page 474, a short account was given of the proceedings of the International Pharmaceutical Congress at St. Petersburg, in which it was stated that a preliminary draught by Dr. Méhu had been distributed among the delegates for examination, correction, etc., said draught to be returned to the committee at St. Petersburg for further revision.

At the "Congrès périodique international des sciences médicales," which recently (Sept. 9–15th) convened at Geneva, Switzerland, H. P. Madsen, from Copenhagen, stated that the International Pharmacopœia had so far progressed that it was translated into Latin, and would in a few months be ready for distribution among the different pharmaceutical societies in Europe for final revision.

A lively discussion followed, which resulted in the nomination of the following committee of eight (four physicians and four apothecaries): Dr. Pachiotti, Prof. of Pathology in Turin; Dr. Wilkinson, President of the British Association; Dr. Seguin, New York; Dr. Marion Sims; Prof. Gille, Brussels; Dr. Méhu, Paris; H. P. Madsen, Copenhagen.—H. M. W., from *Ny Pharm. Tid.*, 1877, p. 321.

The Metric System.—The Boston Society of Civil Engineers have forwarded to Congress the following memorial:

To the Honorable the Senate and the House of Representatives of the United States, in Congress assembled—

The memorial of the Boston Society of Civil Engineers respectfully showeth: That the incongruous weights and measures which have been in general use by this nation since its birth are inconvenient in computation, ambiguously named and

irregular in their ratios one to another; whereas the metric system, which was legalized in the United States in 1866, and has been adopted by nearly all the governments of Europe and America, has decimal subdivisions, like the federal coinage, a uniform nomenclature and very simple relations between its several units.

That the following-named seventeen organizations have assured your memorialist of their co-operation in petitioning your honorable body to make the metric standards the only legal standards after some date to be fixed several years in advance, viz.: Boston Society of Medical Science; Boston Society of Medical Observation; the Belles Lettres Society of the Illinois Wesleyan University, Bloomington, Ill.; St. Joseph's Medical Association, St. Joseph, Mo.; St. Louis Medico-Chirurgical Society; New England Association of Gas Engineers; Boston Homœopathic Medical Society; Engineers' Club of St. Louis; San Francisco Microscopical Society; Middlesex Mechanics' Association, Lowell, Mass.; St. Louis Medical Society; Alameda County Medical Association, Oakland, Cal.; Chamber of Commerce, Richmond, Virginia; Mt. St. Mary's Seminary of the West, Cincinnati, O.; New Haven Medical Association; Massachusetts Medical Society; Maine Medical Association.

That the following resolution was proposed in the forty-fourth Congress, as appears from the Congressional Record for May 8, 1876, but was never voted upon:

"*Resolved*, That the heads of the executive departments of the government be, and they are hereby, requested to report to this house, at as early a date as practicabe, what objections, if any, there are to making obligatory in all governmental transactions the metrical system of weights and measures, whose use has been authorized in the United States by act of Congress, and also how long a preliminary notice should be given before such obligatory use can be introduced without detriment to the public service, and that they are also requested to state what objections there are, if any, to make the metrical system obligatory in all transactions between individuals, and what is the earliest date that can be set for the obligatory use of the metrical system throughout the United States."

Your memorialist therefore prays for the adoption by your honorable body of the said proposed resolution.

Silver Cleansing Solution.—Take of ammonium carbonate 1 ounce, dissolve in 4 ounces of water, mix this with 16 ounces Paris white. A moistened sponge is dipped in the powder and rubbed lightly over the surface of the metal, after which the powder is dusted off, leaving a brilliant lustre.—*Druggists' Circular.*

A New White Paint.—Native barytes, or barium sulphate, is mixed with pulverized stonecoal and tar, and exposed to an intense heat, so as to convert into barium sulphide. The latter being soluble can be dissolved out, and to the clear solution is added a corresponding quantity of zinc chloride in solution, when zinc sulphide will be precipitated, while barium chloride remains in solution. To the solution of barium chloride is added white vitriol (zinc sulphate), when a precipitate of barium sulphate will be formed and zinc chloride left in solution, which latter can be filtered and again employed to precipitate the barium sulphide.

The two precipitates obtained as above, namely, zinc sulphide and barium sulphate, are well washed, mixed, dried, heated to a cherry-red, then thrown into cold water, and finally ground in water and dried. The white pigment thus obtained covers well, and is well suited to mix with oil, as a substitute for lead, especially where sulphur compounds exist or may be generated.—*Scientific American*, Oct. 6

Simple Tests for Flour Adulterations.—Dr. Himly, Professor of Chemistry at the University of Kiel, has suggested a method by means of which any person of ordinary intelligence may test the amount of adulteration of flour. It is based upon the fact that chloroform is specifically lighter than nearly all the substances usually employed for these adulterations, such as lime, chalk, barytes, plaster, marble, bone-powder, etc, while the genuine flour is again lighter than chloroform, in which none of the above-named substances are soluble. The testing process is simple, and all the apparatus required is a small test tube about $\frac{3}{8}$ inch in diameter, and 4 or 5 inches long. A teaspoonful of the flour to be tested is placed in the test-glass and chloroform poured on to fill the vessel to about three-quarters of its length, when it is well shaken and then placed in an upright position, so as to remain undisturbed until the various substances mixed together have had time to find the level assigned them by their specific gravity, the flour swimming near the surface at the top of the vessel, while the mineral bodies will sink to the bottom. It should be observed that unadulterated flour often shows a slight filmy deposit of a grayish or brownish color, which it must be supposed is stone-dust, produced in grinding. A white deposit, however, will invariably indicate an adulteration with one or another of the substances mentioned above. If the materials are weighed before and after separation, the amount or degree of adulteration may be pretty accurately ascertained.—*Ibid.*, Oct. 27, 1877.

Tests for Adulterations of Oil of Cloves and Oil of Pennyroyal.—Oil of cloves is often adulterated with carbolic acid. This may be detected by agitating the suspected oil with fifty parts of hot water; decant and slowly evaporate the aqueous portion to a small bulk. Add one drop aqua ammonia and a very little chlorinated lime. If carbolic acid is present, a green color, changing to a permanent blue, is developed.

Pure oil of cloves congeals into a crystalline mass, with total loss of its odor, when agitated with an alcoholic solution of potassa.

Oil of pennyroyal is mixed with oil of peppermint as an adulterant. To detect this mixture I have found the following process very effective:

Take of Hydrate chloral, ... ℥i
Sulph. acid, C. P., . . . ℥ss

Rub together until a liquid is formed, which make clear by adding alcohol, drop by drop. Place a few drops of this solution in a watch-glass, with an equal amount of the oil, then rub together with a glass rod. If oil of pennyroyal is present, it will turn an olive green, but if it is pure oil of peppermint the color will be a cherry red.—*Med. and Surg. Rep.*, Sept. 15, 1877.

Dangerous Vinegar.—The Board of Health of the District of Columbia has condemned five carloads of vinegar sent there from Chicago, on the ground that it is not a genuine article, and is injurious to health. An analysis of the so-called vinegar has been made. It appears, according to the report of the Board of Health,

that the vinegar contains $54\frac{54}{100}$ grains per gallon of anhydrous sulphuric acid, combined with lime, to form a sulphate of lime equivalent to $117\frac{26}{100}$ grains of gypsum per gallon, and besides that 5 grains of free sulphuric acid per gallon. The Board also reports that this sample was taken from an invoice of more than 1,000 barrels brought there to be sold as vinegar, and that it is likely to find a ready sale on account of its low price. The report concludes as follows: "When we think that oil of vitriol (sulphuric acid) can be bought at 5 cents per pound, and that a pound of said acid would render a barrel of fluid as acid as the strongest vinegar, the wonder will ceace that it is sold cheap. This, therefore, is a fraud upon commerce, and a dangerous substitute for vinegar." The fraud and danger are more general than the great mass of people will readily believe. It is asserted that probably one-half the vinegar sold at city groceries is a rank poison, with either sulphuric or other objectionble acids for its base.—*Ibid.*, Sept. 8.

Detection of Free Sulphuric Acid in Wine and Vinegar.—Nessler proposes to cut filtering paper into strips of 30 to 40 centimeters, and to dip the lower end into the liquid, which will be drawn up by capillary attraction, and evaporating above will there leave the paper, after 24 hours contact and subsequent drying in a water-bath, of a brown or black color; the presence of a minute (less than 0·5 per cent.) quantity of sugar increases the delicacy of the test.—*Phar. Cent. Halle*, No. 40.

Adulterations of Red Wines.—W. Bachmeyer proposes to mix about 5 cc. of the wine with an equal bulk of nitric acid, spec. grav. 1·2. A wine which has been artificially colored is thereby decolorized in a few minutes or within about one hour, while the natural red color of wine is not affected after several days, unless an excess of the acid has been added.—*Chem. Centralbl.*, No. 42, from *Polyt. Jour.*

Wine Adulteration.—The "Bien Public" says that the falsification of wines with fuchsin, and the dangers to the public health arising from that practice, have obliged the government to take active steps for its repression.

At first the examination of the wine was made at the stores of the merchant, but this was found to be useless, and the adulteration continued. A special commission has now been appointed to inspect the liquor at the wine-shops, and samples are submitted to analysis exactly according to the English system. If the presence of fuchsin or any other dangerous ingredient is established, the seller is severely punished.—*Dublin Med. Press and Circ.*, Oct. 31.

Poisonous Tin.—An ordonnance of the Parisian police, which was adopted some years since, ordered all tin-ware manufacturers and traveling workmen to employ

exclusively fine tin for covering copper vessels which are intended for cookery. It has been proved, by recent analyses made at the instance of the Council of Hygiene of the Seine, that this order is systematically disregarded. It has been found that specimens of the metal employed in tinning such vessels contained relatively large quantities of lead, which is liable to be dissolved, and thus exercise poisonous effects. The police have been ordered to make inspections of the tin factories in future, in order to check this practice.—*Ibid.*

MINUTES OF THE PHARMACEUTICAL MEETING.

PHILADELPHIA, Nov. 19, 1877.

The meeting was called to order by Vice President Chas. Bullock; the minutes of the last meeting were read and approved,

Prof. Maisch presented an engraved likeness of Dr. Hermann Hager, on behalf of Dr. Fred. Hoffmann, of New York, who had on a previous occasion presented to our college quite a number of other pictures of the distinguished chemists and scientists of Europe. On motion of Mr. Shinn, the Registrar was directed to return the thanks of the meeting for the same.

Mr. Mattison called attention to some specimens of malt extract, showing the effects produced by long continued heat with atmospheric contact, in contrast with those obtained by evaporation by means of a vacuum pan. In the former case the heat attained was about 220 to 225°F., and the extract was of a dark-brown color, transparent, very sweet, and evidently contained much sugar; in the other case, the temperature never rose above 130°F., and the extract obtained was light-brown, somewhat opalescent, less sweet, and contained nearly all the dextrin unaltered.

Prof. Maisch said that dextrin was easily altered by heat, which accounted for the different appearance of the two extracts; but from this it did not follow that the officinal extracts, made by the pharmacist by the aid of judiciously applied heat, must necessarily be impaired by this treatment and inferior to those made in vacuo; while the color did change from the alteration of the extractive, the virtues of the extracts were still retained.

Mr. Shinn stated that with proper and efficient refrigeration the evaporation of tinctures in the pharmaceutic still, introduced to the notice of pharmacists some 25 years since, proceeded much faster than in the open air with constant stirring of the liquid.

Prof. Maisch presented specimen of the Anacahuite wood obtained from Cordia Boissieri, and recommended in 1860 as a remedy for consumption; numerous trials made with it about that time in the hospitals of several European cities proved it to be of no remedial value; chemical investigation, likewise, yielded nothing of importance.

Prof. Maisch showed the white incrustation of the branches of a shrub sent by Mr. Wm. B. Addington from Hot Springs, Arkansas; the incrustation obtained by immersion in the spring waters consisted principally of carbonate of calcium, with

traces of iron, some magnesium and notable quantities of lithium; the examination was made in the College laboratory by Mr. Betz.

Mr. Shinn presented a specimen of so-called rock soap from California, which, mixed with an equal quantity of soap, is employed there as a detergent; it was thought that in composition it was a silicious talc. Mr. Neppach stated that a similar article was obtained on the coast of Oregon.

Prof. Remington was called to the chair while Mr. Bullock gave some account of the seeds of Sophora speciosa, in which an apparently new alkaloid has been recently observed by Prof. H. C. Wood, Jr., of this city; one-half of a seed is said to be sufficient to produce delicious exhilaration, followed by a sleep lasting one or two days, and a whole seed is sufficient to kill a man. Through the kindness of a correspondent, in San Antonio, Texas, Mr. Bullock had obtained a sample of the seeds which he exhibited; these are somewhat irregular in shape, with a general disposition to an oval form, the large ones having a longitudinal diameter of $\frac{60}{100}$ of an inch, and a transverse diameter of $\frac{45}{100}$; their color varies from pale to dark red, the testa is horny, from $\frac{3}{100}$ to $\frac{5}{100}$ of an inch in thickness, the interior is a white oily kernel, having a slightly bitter taste. The seed yields its coloring matter to dilute but not to strong alcohol; nor has it yet been determined in what part the medicinal activity of the bean resides, but the probability is that it is in the testa. The seeds are contained in a pod of yellowish-brown color varying from 1 to 2¾ inches in length, and enclosing from one to five seeds. When a further supply, which has been promised, shall have been received, the chemical character of the constituents will be worked out. Prof. Wood, Jr., proposed to name the new alkaloid *Sophoria*.

A sample of berries was presented by a member present to whom they had been sold as *nutgalls*; they were recognized by Prof. Maisch as orange berries or small immature oranges.

Mr. Boring exhibited a specimen of fluid extract of glycyrrhiza, made by a process of insuccation, published by Mr. H. Biroth in the Chicago "Pharmacist," his method being essentially the exhaustion of 16 troyounces of the concised root with 4 pints of water containing 8 fluidounces of glycerin, followed by another 4 pints of water, and the whole evaporated to the measure of a pint; the objection to this process, in Mr. Boring's opinion, was the unnecessary amount of evaporation required to bring it to the proper bulk.

This latter preparation induced considerable discussion relative to the best means of disguising the taste of bitter medicines, particularly that of quinia. Prof. Maisch asked whether the members had noticed the occurrence of a precipitate on mixing aqueous solutions of quinia and ammoniacal glycyrrhizin. Mr. McIntyre stated that it had been noticed by him, and Prof. Maisch suggested that this might in part account for the tastelessness of the mixture. Mr. Boring stated that it was very important to exclude all alcohol from the quinia mixtures where the taste had to be masked.

Mr. Boring called attention to some of the products of a company organized in this city for the purpose of utilizing the carcases of animals not useful for food; the skins are first removed, the hoofs and foot bones are kept separate, from which neats foot oil is prepared; tendons are used to make glue, the remainder of the carcas is placed in close boilers and subjected to the action of the vapor of petroleum benzin;

this removes all the fatty matters which are obtained by distilling off the benzin, the remains are then used as fertilizers.

Mr. Boring also presented a sample of wild cherry bark, which was finely powdered for the purpose of adulterating guarana.

Prof. Maisch also presented, on behalf of Mr. Gustavus J. Luhn, of Charleston, fossil remains obtained from the phosphatic deposits of South Carolina; they consisted of teeth, vetebræ and other bones and various shells, and are used for fertilizing purposes.

There being no further business, the meeting adjourned.

T. S. WIEGAND, *Registrar.*

PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

Philadelphia College of Pharmacy.—The Board of Trustees has appointed Mr. Thos. S. Wiegand actuary. The office was created for the purpose of making the library and museum of the College accessible to the students and others. Since the beginning of October the actuary has been at the College on every week day, Saturdays excepted, between the hours of 3 and 10 o'clock P. M. This arrangement will continue throughout the lecture season, for the special convenience of the students. During the spring and summer the actuary will be at the College every afternoon between 3 and 6 o'clock. This arrangement will enable members and others to consult the works contained in the library, and examine the collection of drugs, chemicals, etc., during the day time and at hours convenient to most, and all are invited to make use of the facilities thus afforded.

The Board of Trustees has also ordered the purchase of another lantern, to be used for illustrations during the lectures in connection with the oxyhydrogen microscope.

Alumni Association Philadelphia College of Pharmacy.—The second social meeting was held Nov. 1st, 1877, in the College hall, and called to order by President Mattison; about forty members present.

The report on anilin green in syrup of iodide of iron, volunteered at the last meeting by Mr. H. Betz, was read. (See page 581.)

A paper on "cell structure," by President Mattison, was illustrated by microscopic specimens, and was the basis of considerable discussion on the respective doctrines of spontaneous generation and its reverse.

Mr. Kennedy, of Pottsville, Pa., read a paper on salicylate of sodium, which is extensively used there in rheumatism. (See page 592.)

Dr. Miller exhibited specimens of expressed oils of hemp seed, laurel berries and cherry pits, and stated that the first-mentioned was used in Germany to impart the green color to sapo viridis. He also remarked that expressed oil of mustard seed was an excellent substitute for olive oil for most culinary purposes.

The same gentleman announced his intention of giving at the next meeting some

of the more important facts, illustrated on the blackboard, connected with the Latin declensions as applied to pharmaceutical nomenclature.

Adjourned to meet Dec. 6th, 1877.

WALLACE PROCTER, *Secretary.*

The Vermont Pharmaceutical Association held its annual meeting at Rutland, Oct. 24 and 25, Mr. M. K. Paine, of Windsor, presiding. In his annual address the President alluded to many practical points, and strongly advocated the manufacture of all pharmaceutical preparations by the pharmacist. Professor Markoe lectured on the metric system, illustrating his remarks by various apparatus, models and diagrams. Several papers were read on subjects pertaining to pharmacy, and the following officers elected for the ensuing year: President, A. W. Higgins, Rutland. Vice-Presidents—W. H. Huntington, Rochester; Geo. A. Crossman, Brandon. Secretary, C. S. Boynton, Brandon. Treasurer, E. C Lewis, Rutland.

The next meeting of the Association will be held at St. Albans, in Oct., 1878.

Alumni Association St. Louis College of Pharmacy.—At the meeting held Nov. 20, President H. Lindemann in the chair, papers were read by Mr. F. F. Reichenbach on the syrups of the hypophosphites; by Mr. F. Henn on dialysis and dialyzed iron, and by Mr. R. Hunstock on the preparation of syrups by frigid percolation.

California College of Pharmacy.—The annual commencement was held on the evening of Nov. 16, at Pacific Hall, San Francisco, when, after introductory remarks by Prof. J. LeConte, the valedictories were delivered by Prof. W. T. Wenzell, on behalf of the faculty, and by Mr. N. Rogers on behalf of the graduates.

The graduating class for 1876 consisted of Nathan Rogers, Fred'k E. Ray and H. R. Harris, and for 1877 of J. A. Bauer, J. M. Curragh, John Devine and Edward Selzer.

The exercises, which were enlivened by orchestral music, were followed by a social reunion of the students' Adelphi Society, at which the party enjoyed themselves with dancing for several hours.

Pharmaceurical Society of Great Britain.—At the first pharmaceutical meeting of the session, held Oct. 3, the professors of the pharmaceutical school and the examiners of the council made their annual reports, after which the examination prizes were distributed, and Mr. Wm. Southall delivered the inaugural address of the session.

At the meeting held Nov. 7, Prof. Redwood read a paper on *the poisonous effects of yew leaves,* relating the case of an attempted abortion by means of a decoction of the leaves, a quantity of the latter having also been taken with a fatal result. In the discussion following, allusion was made to the assertion sometimes met with, that the decoction of yew leaves was not poisonous, but the leaves only produced fatal results, which, however, does not appear to be the case. The examinations by Lucas and Maviné were also referred to, resulting in the isolation of an alkaloid,

taxin, occurring in the leaves and in smaller quantity in the fruit. Several members stated that they knew of the pulpy part of the fruit being eaten with impunity, but could not say what effects might be produced by the seeds. Mr. Gerrard, who was examining the constituents of yew leaves, had thus far obtained a body which, though precipitated by phosphomolybdic acid, was not precipitated by other alkaloidal reagents, and appears to be a glucoside. The president, Mr. Williams, mentioned that in this and other cases of poisoning by yew leaves, local inflammation had been produced which was the character of irritant oleoresinous bodies, and he apprehended that this would turn out to be the nature of the poisonous principle in this case.

Mr. Holmes briefly described the differences between the common English and Irish yew, the latter having erect branches, with leaves more or less tufted, whence its name "fastigiata."

Mr. F. M. Rimmington read a paper on *Sweet Spirit of Nitre*. In a paper published in "Phar. Jour. and Trans.," Nov. 3, the author described the processes of the London Pharmacopœias of 1746, 1788, 1809 and 1836. The formula of the present British Pharmacopœia he considered unnecessarily complex, particularly inasmuch as it directs to suspend the process after a certain amount had been distilled, and to cool the apparatus in order to add some more nitric acid to the contents. Spirit of nitre, free from aldehyd and other oxidized products, will keep four to six months with but little change, in bottles filled and well stoppered; any addition of water greatly accelerates decomposition. A spirit containing 4 or 5 per cent. of nitrite of ethyl is a fair standard of strength for medicinal use, but the process of the Pharmacopœia had not yielded in the author's hands a spirit of that strength. An ounce of HNO_3 is required to produce one ounce of nitrite of ethyl, and in its production about 2 oz. of spirit, sp. gr. ·835, will be decomposed and one ounce or more of water formed. The spec. grav. of the medicinal spirit ought not to be higher than ·845. Two different samples had been kept for seven months, in corked bottles, not quite full; one made with alcohol, ·825, by the formula of 1746, had decreased in strength from 18 to 14 per cent. of ether, and its acidity was then equal to ·182 per cent. of nitric acid; the other, made by the formula of 1836, with alcohol, sp. gr. ·838, was in the same time reduced from 3 to 2 per cent. of ether, while the acidity was equal to ·367 nitric acid. The author estimated the quantity of ethylic nitrite by distilling the spirit from chloride of calcium.

Professors Attfield and Redwood opposed the assumption that the oily liquid separated by calcium chloride was pure nitrite of ethyl, but stated that it contained also alcohol, aldehyd and probably some other compounds.

Mr. Holmes read a paper entitled *Notes on Casual Drugs*, which cannot well be abstracted, and which we intend to publish in our next number.

The German Apothecaries' Society held its sixth annual meeting at Leipzig, Sept. 5 and 6, Director Wolfrum presiding. The transactions were mainly confined to the consideration of the law proposed by the chancellory of the German Empire for the regulation of the practice of pharmacy, and which was amended and then adopted. The next annual meeting will be held at Coblence.

Austrian Apothecaries' Society.—The sixteenth annual meeting was held at Vienna, Oct 15 and 16, Director Schiffner in the chair. The Society consists of 495 active, 43 corresponding and 72 honorary members. The annual reports of the Directory and the Treasurer were read, and the usual routine business transacted. Dr. R. Godeffroy delivered a lecture on the reactions of the cinchona alkaloids, illustrated with experiments by means of the camera.

The Austrian Pharmaceutical Society held its third annual meeting at Vienna, Sept. 10 and 11, Mr. G. Hell presiding. Besides the routine business, the Society discussed the subjects of pharmaceutical education and of the revision and reform of the laws regulating the practice of pharmacy.

The Swiss Apothecaries' Society held its thirty-third annual meeting at Lenzburg, Aug. 16 and 17, Prof. E. Schaer presiding. The affairs of the Society were discussed, the trade in secret remedies received due attention, and several communications were made relating to the analyses of articles of food and to a collection of oils of various species of Eucalyptus.

EDITORIAL DEPARTMENT.

The Friends of this Journal have very generously supplied us during the past year with a large number of original communications and essays, many of which are of more than ordinary value, and for all of which the Editor feels under obligations to the contributors. We trust that they will continue to show the same friendly interest in the future, and we take occasion to again invite our readers generally to furnish us with accounts of their observations made at the prescription counter or in the laboratory, and with communications of general pharmaceutical interest.

The Business Editor, we are informed, has also had cause to value the promptness of most of our readers in the timely remittance of their subscriptions, and he invites those who have overlooked the matter to make good their past omissions.

The Philadelphia Drug Exchange tendered a very pleasant and creditable entertainment to the drug trade and others on the evening of October 16. The spacious auditorium of the new Association Hall was well filled, and the proceedings consisted of a brief address by the president, Mr. Wm. M. Wilson; a very interesting address, sketching the history of the drug trade of Philadelphia, by Mr. Wm. Gulager; an entertaining lecture, with numerous chemical experiments, by Professor R. E. Rogers, and an exhibition with the projecting microscope by Mr. D. S. Holman, the whole interspersed with vocal and instrumental music.

On the third floor of the building a display of chemical and pharmaceutical preparations from the laboratories of Philadelphia manufacturers was arranged,

and under the direction of Dr. J. G. Richardson a large number of microscopical preparations and the effects of polarized light were shown.

The rooms were kept open also on the following day and evening and were visited by a large number of ladies and gentlemen.

Churchill's Tincture of Iodine.—Under this name a preparation has been recently employed in several parts of the United States, about the composition of which there seems to be some uncertainty. The "American Practitioner" for November copies the formula marked I from Churchill's "Diseases of Women," 1864, and mentions two other formulas, one of which, No. II, we find in Gaillard Thomas' "Diseases of Women," Philada., 1868, page 248. It is difficult to understand why this should be called a *tincture*, and though iodine is very freely soluble in glycerin, it probably does not dissolve to the extent directed. The third formula mentioned in "The Practitioner," we have since been informed, was obtained from a professor of obstetrics in a Western medical college, but we have not had time to ascertain in which medical work it had been published; we give it under No. III.

I.		II.		III.	
Iodin. pur.,	℥iiss	Iodinii,	℥ss	Tinct. Iodinii,	
Potass. iodid,	℥ii	Glycerinæ,	f℥i	Acid. carbol. liq. *āā*	p. i
Spir. rectific.,	f℥xii			Hydrat. chloral.,	pt. ii
Alcoholis,	f℥iv				

The preparation, which is locally applied in certain uterine diseases, does not appear to be known in Great Britain by the name under which it was sought to introduce it in the United States. We observe, for instance, Dr. E. J. Waring ("Practical Therapeutics," 1871, p. 350) quotes Churchill as having used the "caustic tincture of iodine," without, however, giving a formula for it. P. Squire's "Pharmacopœias of the London Hospitals," 1874, does not mention any such preparation, but has two under the designation *Causticum Iodi*, of which IV is employed at the hospital for diseases of the skin, and V at the Consumption Hospital. In the same connection the *Linimentum Iodi* may be mentioned, which was admitted into the British Pharmacopœia of 1864 (No. VI), but reduced in strength in the edition of 1867 (No. VII).

	IV.	V.	VI.	VII.
Iodine,	℥i	℥i	℥i¼	℥i¼
Iodide of potassium,	℥i	℥ii	℥ss	℥ss
Rectified spirit,	—	f℥ss	f℥v	f℥x
Water,	f℥ii	—	—	—
Camphor,	—	—	—	℥¼

It should not be overlooked that the weights and measures of the above formulas are those of the British Pharmacopœia, the ounce weighing 437·5 grains, and the fluidounce being one-twenty-fifth smaller in volume than the fluidounce of the U. S. P.

The last formula (VII) is nearly identical with that for *Liniment ioduré vésicant* of Néligan, which Dorvault ("l'Officine," p. 596) gives as follows: Iodine 10, iodide of potassium 4, camphor 2, alcohol 60 parts.

Quackery in the Garb of Piety.—We have received several letters asking for information about a nostrum which is extensively advertised in a style somewhat similar to that adopted by a quack, "whose sands of life had nearly run out" a number of years ago, but who seems to be at the bottom of the present enterprise, or else has been successfully copied by another. The latter pretends to be a minister of the gospel and a former missionary at Para, where he asserts to have become acquainted with the wonderful restorative properties of this compound, which consists of extract of *corassa apimis* eight drachms, extract of *selarmo umbelifera* four drachms, powdered *alkermes latifolia* three drachms and extract of *carsadoc herbalis* six drachms. In his compassion for unfortunate sufferers, this good and pious quack offers to send this wonderful remedy, securely sealed and accompanied by directions and some excellent advice, for the modest sum of $3.30 by express or $3.50 by mail, which price includes the government stamp, and is just what it costs him; he seeks no other reward than the satisfaction of doing good and the blessing of an approving conscience. His means make him independent, and he goes to all this trouble merely because the drug stores cannot be relied upon to procure new remedies of pure quality.

To inquirers we have simply to state that there are no plants in the Amazon valley, or anywhere else, bearing the above names, and this alone should be sufficient to stamp the enterprise as an imposition, merely undertaken for the purpose of catching the dollars of dupes.

A quack of the same stamp, simulating piety and frankness with the view of the more readily drawing the money of the credulous, was exposed by the "Philadelphia Times" of November 14. His prescription for the sure and speedy cure of consumption, etc., which he offered to put up at $3, was as follows:

Extract Asiatic cannabis sativa, two ounces; extract Asiatic halish sativa, three ounces; verbena hastata, two drachms; extract diasma, three drachms; pulverized cinchona bark, two ounces; extract cashgar leaves (blood root), three ounces: Inulin, one drachm; loaf sugar, one pound; rum or gin, half pint; cold water, one pint.

Forged Diplomas.—Under date of October 27, the following note was received by one of the faculty:

"Disreputable persons are trading in diplomas of the Philadelphia College of Pharmacy. They were given to graduates who are now deceased. The proposition is to erase the name of the dead graduate and insert any name to suit the case. The price of the black sheepskin is $100—cash in confidence."

The note was signed "An alumnus of P. C. P." It is scarcely necessary to state that such a communication is not suited for any action. If such a forgery has been committed, we should think that every alumnus having such knowledge would put the officers of the college into a position to act intelligently in the matter, by furnishing proof or pointing out the direction where to obtain it.

The Tenth Dilution.—No. 39 of the "Pharm. Centralhalle," relates that a pharmacist, having received a prescription of a homœopathic physician of Vienna for a certain quantity of *belladonna, X dilution*, dispensed distilled water, and was a short

time afterwards requested to still more dilute the medicine, *because it was too powerful.*

Correction.—Our readers will please correct the words "4 parts" and "30 parts," on page 513, lines 3 and 4, to 4 *times as much* and 30 *times as much cold water.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Transactions of the International Medical Congress of Philadelphia. 1876. Edited for the Congress by John Ashhurst, Jr., A.M., M.D., etc. Philadelphia: printed for the Congress. 1877. Large 8vo, pp. 1200.

This stately volume is mainly occupied by the addresses delivered before the Congress and the papers read and discussions had before the sections. The remaining portion is taken up by historical notes on the preliminary arrangements, the minutes and lists of officers of the Congress and of its nine sections, and of the delegates and invited members. The Congress convened Sept. 4, 1876, and held daily sessions until Sept. 9, when it adjourned. The volume proves that a large amount of valuable work has been performed on that occasion.

A Guide to Therapeutics and Materia Medica. By Rob. Farquharson, M.D, Edin., etc. Enlarged and adapted to the U. S Pharmacopœia. By Frank Woodbury, M.D. Philadelphia: Henry C. Lea, 1877. 12mo, pp. 410.

The alphabetical arrangement adopted in this work will be found quite convenient. Under each heading the different chemical and pharmaceutical preparations are enumerated together with their relative strength and doses, and their physiological and therapeutical action arranged in columns in a diagrammatic form; for poisonous substances the proper antidotes are also given. The introductory chapter is devoted to "General rules for prescribers."

In preparing the work for the use of the American practitioner, the editor has very properly adapted it to the U. S. Pharmacopœia, a labor which appears to have been very well performed, and which will be appreciated by those who use the handy volume.

Materia Medica for the Use of Students. By John B. Biddle, M.D., Professor in the Jefferson Medical College. Eighth edition. Revised and enlarged, with numerous illustrations. Philadelphia: Lindsay & Blakiston, 1878. 8vo, pp. 462. Price, cloth, $4.

We have on former occasions noticed some of the preceding editions of this work, which appears to be very useful for the *medical* student, and has been revised so as to include all the new medicinal agents of any importance which have found favor in the United States. In looking over the volume we find its statements generally correct; among the oversights we mention that the water of crystallization has been omitted in the formula Na_2CO_3 for crystallized carbonate of sodium, and that the typographical error of some or the earlier volumes of the last Pharmacopœia is again reproduced upon p. 104, where Spiritus Chloroformi is stated to be a solution of a troyounce of chloroform in twelve fluidounces of *diluted* alcohol.

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